

NCR

NCR Comten

EXAMS 3.0

Expert Analysis and Modeling System

Memory Estimation

**Keyword
Reference
Manual**



NCR Comten

EXAMS 3.0

Expert Analysis and Modeling System

Memory Estimation

**Keyword
Reference
Manual**

FOREWORD

The Expert Analysis and Modeling System (EXAMS) is a comprehensive family of network performance and capacity planning tools developed by the Department of Network Engineering at NCR Comten. Network Engineering is chartered to produce the technology and methods for performance evaluation and capacity planning of NCR Comten data communications networks.

Network Engineering modeling tools can help properly size a customer's network and develop a sales proposal. The reports produced by the models are suitable as documentation for a proposal. The models provide performance estimates to answer questions about network alternatives. This information can be used for tuning an existing network to optimize performance versus cost or it can aid in systematic planning for future growth. Using modeling estimates, the analyst can diagnose potential capacity problems before they arise in operations.

The major modules of EXAMS are:

1. **PAM** - Performance Analysis Module. A dual function model which performs both linear and nonlinear analysis. The General Analysis estimates utilization of network components supporting a given workload and the demand placed by traffic on an entire network including utilization of all NCR Comten processors, CNS, ACF/NCP, or X.25 trunking, and terminal lines. It also calculates the polling rate and maximum throughput for each data path. The Sensitivity Analysis is used for optimization and network capacity planning. It performs an in-depth analysis of a subset of the network and predicts network response time and capacity for any specific traffic path. System bottlenecks are identified to aid planning for network growth.
2. **MEM** - Memory Estimation Module. A linear analytic model used to estimate the storage required in the NCR Comten processor to support a given network. MEM estimates storage requirements for NCR Comten program modules, tables, and buffer pools.
3. **Prompter**. An interactive full-screen prompter designed to help the user build or modify a PAM or MEM input file that is consistent and error free, without requiring a complete knowledge of the specific input file formats and structure. The Prompter displays various screens which will guide the user in the parameterization of all required keywords and values. The Prompter also will optionally display additional screens as desired to allow the user to choose values for any or all of the many available PAM and MEM keywords.
4. **Expert**. An interactive interface to PAM and MEM capabilities. This interface utilizes the techniques of expert systems from the field of artificial intelligence, and serves to gather modeling requirements from limited information and to interpret the analysis results for the user.

This modeling system is not a licensed product of NCR Comten; the models are tools only for the use of NCR Comten personnel, including Field and Sales Analysts and Capacity Planners.

EXAMS is a set of computer programs embodying mathematical representations of NCR Comten hardware and software in support of data communications traffic flow. As with any model, mathematical assumptions have been made which generally apply to the more common types of networks and protocols. In some cases, the models may not be applicable to networks having unusual features or operating environments. Questions regarding the applicability or interpretation of the models' results may be addressed to the departments of Capacity Planning or Network Engineering.

Neither these manuals nor the models themselves should be taken as product specifications of the features of licensed NCR Comten products.

CONTENTS

SECTION 1

INTRODUCTION.....	1-1
Product Overview.....	1-2
Memory Estimation Module.....	1-2
Applications of MEM.....	1-3
Functions of MEM.....	1-3
MEM in Relation to the System Generation Procedure.....	1-6
Operational Environment.....	1-7
Information on Old and New MEM Parameters.....	1-7

SECTION 2

FUNCTION AND GENERAL PRINCIPLES.....	2-1
General.....	2-1
Storage Components.....	2-1
Line Definition in MEM.....	2-2

SECTION 3

MEM PARAMETERS.....	3-1
Parameterization.....	3-1
Input File Format.....	3-1
Parameter Format.....	3-3
Parameter Types.....	3-3
Documentation Conventions.....	3-3
COMTEN PROCESSOR NODE.....	3-5
ADVANCED COMMUNICATION FUNCTION/NETWORK CONTROL PROGRAM - ACF/NCP....	3-19
ADMINISTRATIVE MESSAGE SWITCH - AMS.....	3-31
COMMUNICATIONS ALERTING FACILITY - CAF.....	3-41
COMMUNICATIONS ACCESS METHOD - CAM.....	3-45
Path Control.....	3-45
COMTEN NETWORKING GATEWAY - CNG.....	3-55
Path Control.....	3-55
COMMUNICATIONS NETWORKING SYSTEM - CNS.....	3-61
Subline Parameterization.....	3-61
DATA COMMUNICATION UTILITY - DCU.....	3-65
NCR CP Product.....	3-66
DISPLAY SYSTEM MANAGER - DSM.....	3-71
EMULATION PROCESSING - EP.....	3-75
Emulation Line Types.....	3-77
SS1 Line Types.....	3-77
BSC lines.....	3-78
MLA lines.....	3-78
Subchannels.....	3-81
Modules, Utilities and Features.....	3-81
MULTIPLE ACCESS FACILITY - MAF.....	3-89

MULTIPLE SESSION MANAGER - MSM.....	3-95
MSM Resources.....	3-97
MSM Session Parameters.....	3-98
NETWORK SUPPORT SERVICES - NSS.....	3-105
NETWORK TERMINAL OPTION - NTO.....	3-109
STATISTICS AND EXTENDED ACCESS CONTROL - SEAC.....	3-111
SUBAREA ROUTING MANAGER - SRM.....	3-113
VRX INTERFACE MODULE - VIM.....	3-117
NCR CP Product.....	3-118
INTERFACE TO PUBLIC DATA NETWORKS - X.25.....	3-121
Virtual Circuits.....	3-122
TIA1 Module.....	3-123
XSWX Module.....	3-124
PCNS Module.....	3-125
AXCS Module.....	3-126

SECTION 4

MEM OUTPUT REPORT.....	4-1
General.....	4-1
Input Parameters.....	4-1
Warning Messages.....	4-1
Summary Pages.....	4-2
Software Product Environments.....	4-4

SECTION 5

MEM SAMPLE ANALYSIS.....	5-1
MEM Sample Analysis 1.....	5-1
MEM Sample Analysis 2.....	5-5
MEM Sample Analysis 3.....	5-11
MEM Sample Analysis 4.....	5-13
MEM Sample Analysis 5.....	5-16
MEM Sample Analysis 6.....	5-18
MEM Sample Analysis 7.....	5-22

APPENDIX A

GENERATION OPTIONS INCLUDED IN MEM.....	A-1
---	-----

APPENDIX B

MEM INPUT FILE SUMMARY.....	B-1
NODE Section.....	B-1
ACF/NCP Section.....	B-3
APS Section.....	B-5
CAF Section.....	B-7
CAM Section.....	B-9
CNG Section.....	B-13

CNS Section.....	B-15
DCU Section.....	B-17
DSM Section.....	B-19
EP Section.....	B-21
FAM Section.....	B-23
MAF Section.....	B-25
MCP Section.....	B-27
MSM Section.....	B-29
NSS Section.....	B-31
NTO Section.....	B-33
SEAC Section.....	B-35
SRM Section.....	B-37
VIM Section.....	B-39
X.25 Section.....	B-41

APPENDIX C

MEM ERROR MESSAGES.....	C-1
-------------------------	-----

APPENDIX X

INDEX.....	X-1
------------	-----

FIGURES

1-1: EXAMS Modules.....	1-1
3-1: General Format for MEM Input.....	3-2
3-2: Basic Processor Configuration.....	3-5
3-3: ACF/NCP Configuration.....	3-19
3-4: APS, MCP and FAM Configuration.....	3-31
3-5: CAF Configuration.....	3-41
3-6: CAM Configuration.....	3-45
3-7: CNG Configuration.....	3-56
3-8: CNS Configuration.....	3-61
3-9: DCU Configuration.....	3-65
3-10: NCR CP 1.0 Configuration.....	3-66
3-11: DSM Configuration.....	3-71
3-12: EP Configuration.....	3-75
3-13: Start/Stop Line Types.....	3-76
3-14: SSI Local Line Types.....	3-79
3-15: SSI Remote Line Types.....	3-79
3-16: BSC Line Types.....	3-80
3-17: MLA Line Types.....	3-80
3-18: Maf configuration.....	3-89
3-19: Remote MAF Configuration.....	3-90
3-20: MSM Internodal Configuration.....	3-95
3-21: MSM Resources Needed for a Session with a Local Application.....	3-96
3-22: MSM Resources Needed for a Session with a Remote Application.....	3-96
3-23: NSS Configuration.....	3-105
3-24: NTO Configuration.....	3-109
3-25: SEAC Configuration.....	3-111
3-26: SRM Configuration.....	3-113
3-27: SRM Mapping Factor.....	3-114
3-28: Vim Configuration.....	3-117
3-29: NCR CP 1.0 Configuration.....	3-118
3-30: X.25 Configuration.....	3-121
3-31: X.25 Module Structure.....	3-122
3-32: TIAL Configuration.....	3-123
3-33: XSWX Configuration.....	3-124
3-34: PCNS Configuration.....	3-125
3-35: Network-attached DTE to link-attached DTE Configuration.....	3-126
3-36: Network-attached DTE to network-attached DTE Configuration.....	3-127
3-37: Link-attached DTE to link-attached DTE Configuration.....	3-127
3-38: PAD-to-PAD in two nodes using the Network Router Configuration....	3-128
3-39: PAD-to-PAD in the same node configuration.....	3-128
4-1: MEM Warning Message.....	4-2
4-2: Configuration Summary Page Example.....	4-3
4-3: Product Summary Page Example.....	4-3
4-4: Product Environment Page Example.....	4-5

5-1: Network Configuration for MEM Sample Analysis 1.....5-1
5-2: Network Configuration for MEM Sample Analysis 2.....5-5
5-3: Network Configuration for MEM Sample Analysis 3.....5-11
5-4: Network Configuration for MEM Sample Analysis 4.....5-13
5-5: Network Configuration for MEM Sample Analysis 5.....5-16
5-6: Network Configuration for MEM Sample Analysis 6.....5-18
5-7: Network Configuration for MEM Sample Analysis 7.....5-21

C-1: Sample Fatal Error Message.....C-3
C-2: Sample Warning Error Message.....C-3

TABLES

1-1: Program Products Modeled by EXAMS 3.0 MEM.....1-4
3-1: Valid Programable Line Handler Configurations.....3-16
A-1: Generation Options Always Included.....A-1
C-1: MEM Error Codes.....C-1

SECTION 1

EXPERT ANALYSIS AND MODELING SYSTEM (EXAMS) MEMORY ESTIMATION MODULE

INTRODUCTION

The Expert Analysis and Modeling System (EXAMS) is a comprehensive family of network performance and capacity planning tools designed for analyzing networks supported by NCR Comten products. EXAMS permits users to size and predict performance of a proposed network, to diagnose bottlenecks and tune an existing network, to determine storage requirements, and to plan for future capacity upgrades.

The EXAMS modeling capabilities include:

- storage requirement estimations,
- utilization estimates for network resources,
- response times for any data path and
- growth capacities for paths and for the network.

The modeling capabilities are delivered in a complete system that interacts with the user to provide both ease of access and clarity of results that together will guide the user into correct actions.

The major modules of EXAMS are diagramed below.

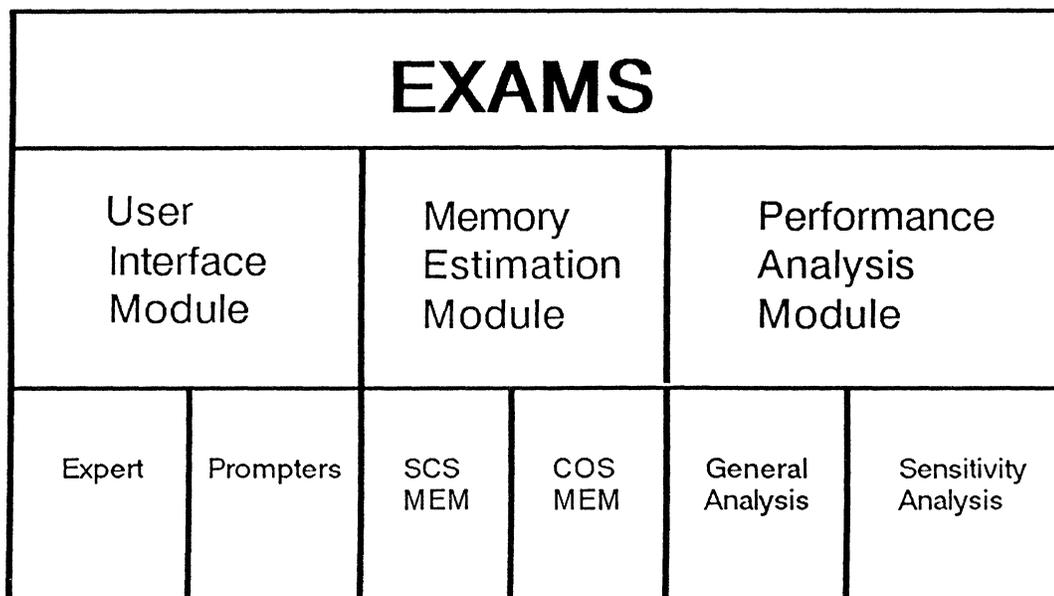


Figure 1-1: EXAMS Modules

PRODUCT OVERVIEW

The Performance Analysis Module is the EXAMS subsystem used to analyze the performance of NCR Comten data communication networks, including utilization, response time and growth capacity. The Memory Estimation Module is the EXAMS subsystem that provides storage requirement estimations for each network processor. The User Interface Module includes both an Expert subsystem and Prompters for each of the modeling components.

This manual covers the capabilities of MEM, the EXAMS Memory Estimation Module.

MEMORY ESTIMATION MODULE

As stated above the Memory Estimation Module, MEM, is the EXAMS subsystem used to estimate the storage requirements of NCR Comten Communications Processors. It is a computer program which will compute both static and dynamic storage requirements. The static storage evaluation determines the requirements for software modules and control tables. The dynamic storage evaluation estimates the buffer pool required to support a certain volume of traffic during system operation.

A data communications network can be logically viewed as a collection of nodes, representing communications processors, which are joined by links. MEM analyzes the memory requirements of an individual node, i.e., an NCR Comten processor. Additional executions of MEM would provide reports for each of the NCR Comten processors in the network.

MEM automates the tedious calculations necessary to estimate storage for NCR Comten processors supporting standard software products. The MEM output report details the memory requirements and generates a complete description of the network factors affecting storage. The report is appropriate for documentation of an existing or planned network.

The MEM output report supplies the total storage requirement for the node, and a detailed breakdown by product of the components of storage, including the cost in bytes for each type of communications line in the network. EXAMS 3.0 MEM provides completely current estimates for all standard NCR Comten software at each version and release level. Additional products will be added as they are released.

The storage requirements depend on the software modules selected, the system configuration, and the many software options and system generation parameters available to the user, such as utility selection and buffer size. Therefore, to obtain a valid storage estimate, a precise and detailed list of parameters must be used.

APPLICATIONS OF MEM

Executing the MEM program is a simple, efficient, and accurate way to estimate the storage needed by a given network configuration. Using MEM eliminates the need to perform lengthy and elaborate hand calculations, or to run an actual system generation assembly for the system. In this way, the analyst can quickly and effectively examine the results of many different alternatives. Answers can readily be found to network planning questions such as:

- How many MAF lines can be added to this network?
- How much storage will additional software, such as NTO, require?
- What will be the storage effects of migration to a new release of software?
- What will happen if a certain group of terminal lines is converted from MAF to NCP?
- Will converting BSC terminals to SNA increase or reduce storage?

MEM can be used to determine the amount of memory that a proposed system should include. It can provide reliable information at an early stage in planning, so as to avoid configuring an inadequate system. The MEM output report is suitable for documentation of a proposal.

The analysis supplied by MEM can also be valuable in analyzing an existing system to determine what network features utilize the largest amounts of storage. The MEM report can serve as documentation of the state of the system as upgrades are applied. MEM can also be used to plan for the future growth of the network. A new MEM execution can be performed or the requirements per line calculated by MEM can be used to estimate the additional storage needed by new lines in the system.

FUNCTIONS OF MEM

EXAMS 3.0 MEM covers the entire line of software products supported by NCR Comten's Communications Operating System (COS2). (Refer to Table 1-1 for a complete list of the products supported by EXAMS 3.0 MEM) The user can specify in the input file which version and release of the product is desired.

EXAMS 3.0 MEM provides considerable accuracy in calculating system storage requirements because of the level of detail permitted in the input file. Every calculation in MEM has been verified and cross checked against system generation assemblies.

The MEM output report is described in Section 4. Each software product in the system has a page in the output report stating the estimated storage needed for software modules, control tables, and buffer pool, divided according to the different functions of the product. In addition, the requirements for each type of communications line handled by the product are given, as well as other storage components unique to that product.

Table 1-1: Program Products Modeled by EXAMS 3.0 MEM

ADVANCED COMMUNICATIONS FACILITY/
NETWORK CONTROL PROGRAM

ACF/NCP3 R1E
ACF/NCP3 R2E
ACF/NCP V2 R1E
ACF/NCP V4.0
ACF/NCP V4.2

APPLICATION PROGRAM SUPPORT

APS R2E

COMMUNICATIONS ALERTING FACILITY

CAF1 R1E

COMMUNICATIONS ACCESS METHOD

CAM3 R1E
CAM3 R2E
CAM3 R3E

COMTEN NETWORKING GATEWAY

CNG R1E
CNG R2E

COMMUNICATIONS NETWORKING SYSTEM

CNS3 R1E
CNS3 R3E

COMMUNICATIONS OPERATING SYSTEM

COS2/90 R1
COS2/90 R3
COS2/50 R3
COS2/20 R3
COS2/90 R4
COS2/56 R4

Table 1-1. Program Products Modeled by MEM 4.0 (Cont'd)

DATA COMMUNICATIONS UTILITY

DCU V2 R1

DISPLAY SYSTEM MANAGER

DSM R1E

EMULATION PROCESSING

EP4 R5E

FILE ACCESS METHOD

FAM R1E

MULTIPLE ACCESS FACILITY

MAF3 R3E

MAF4 R1

RHO R1E

MESSAGE CONTROL PROGRAM

MCP3 R1E

MULTIPLE SESSION MANAGER

MSM R1

NETWORK SUPPORT SERVICES

NSS1 R2E

NSS1 R3E

NSS2 R1

Table 1-1. Program Products Modeled by MEM 4.0 (Cont'd)

NETWORK TERMINAL OPTION

NT02 R1E
NT02 R2E
NT03 R1E

STATISTICS AND EXTENDED ACCESS CONTROL

SEAC3 R1E

SUBAREA ROUTING MANAGER

SRM1 R4E
SRM1 R5E

VRX INTERFACE MODULE

VIM1 R1E
VIM1 R2

INTERFACE TO PUBLIC DATA NETWORKS

X.25-1 R5E
X.25-1 R6E
X.25 V2 R1

MEM IN RELATION TO THE SYSTEM GENERATION PROCEDURE

MEM is designed to estimate the memory requirements for a given NCR Comten system. The storage is actually allocated by the system generation procedure. MEM provides an estimate of the size of this storage, bypassing the need to run a system generation to determine the memory required. Additionally, it offers flexibility and efficiency in sizing storage for proposed systems for which system generations have not been written.

To do its calculations, MEM mimics the system generation procedure as closely as possible in selecting which software modules to include, computing table sizes, determining buffer overhead, etc. The input parameter list has been designed to correspond to the generation procedure input structure but in a streamlined, more readable form. Since MEM does not demand the level of detail that is involved in writing a system generation, the model may not exactly reproduce the results of an actual system generation. The values of the network parameters specified or defaulted in the generation procedure may not be known when the model is executed, but they may have a significant

effect on storage. The accuracy of the results depends on the accuracy and completeness of the input parameters specified by the analyst. Careful parameterization is essential to the correct use of MEM.

However, an extensive set of default values for the MEM parameters has been provided to help the user by supplying the most usual and/or recommended setting. The user should be fully familiar with the options and ranges of the MEM parameters before comparing MEM results with a system generation.

OPERATIONAL ENVIRONMENT

The Memory Estimation Model (MEM) executes on an NCR TOWER-32 UNIX-V system. An interactive prompter which helps a user to create a MEM input file is available to users who have access to a Tower system with Curses. The Expert interface of EXAMS also requires a Tower UNIX V system. Separate documentation is available for both the Prompter and Expert.

INFORMATION ON OLD AND NEW MEM PARAMETERS

- New product sections added:

Data Communications Utility - DCU
Multiple Session Manager - MSM

- Both extended and letter/brief output format options may be specified on a single MEM execution.

- Software version and release changes:

<u>Added</u>	<u>Dropped</u>
ACF/NCP V4.2	(none)
X.25 V2 R1	
MAF4 R1	
NSS2 R1	
VIM1 R2	

- New features and utilities:

SNA Network Interconnection	(SNI - NCP section)
Line Termination Utility	(LTU - NODE section)
Advanced X.25 Connection Services	(AXCS - X.25 section)
Remote AXCS using NSS/CNS	(REM AXCS - X.25 section)

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

SECTION 2

FUNCTION AND GENERAL PRINCIPLES

GENERAL

The Memory Estimation Model is designed to estimate the size of the memory allocation for an NCR Comten processor, and in addition, to estimate the amount of storage that will be needed for dynamic message storage (buffer pool). The estimate is based on the configuration of communications lines, software, host interfaces, etc., which the processor must support. The configuration must be described to the MEM program by means of a user input file, described in Section 3. This section discusses the basic principles of the MEM structure and some concepts that are useful in constructing an input file.

The calculations done by MEM are performed separately for each software product that is present in the processor. The MEM output report includes a one-page storage estimate for each product. The MEM program can be used to model any collection of NCR Comten software, ranging from a single product to the full product line. Each product present requires its own section in the input file. Some software products (for example, NTO) require the presence of other software to be usable. The MEM program will print a warning message if necessary software is missing from the system.

In order to maintain this flexibility in MEM, the methods of estimating storage for the products have been kept as nearly independent as possible. For example, the input parameters and the storage calculated for MAF will have no effect on the input parameters required or the storage calculation for NCP. The user should be aware of this when constructing an input file, and not assume that lines parameterized for one product section will automatically be included for another product.

STORAGE COMPONENTS

The storage estimates made by MEM are divided into three components: code, tables, and buffers. The code component includes all executable NCR Comten software code that is present in the processor. Utilities are not a separate category, although for many products they are listed separately on the product output page. MEM mimics the system generation procedure as nearly as possible, so that the estimate includes all the code that would be included in an actual system generation. The same cautions that apply to writing a generation to obtain the correct code also apply to MEM.

The component described as "tables" includes all fixed tables and control blocks required by the software products for operation. Many of the tables and control blocks are built on a per-line basis, so it is important to parameterize the correct number of lines for each product. This process also mimics the system generation procedure in selecting default table sizes, numbers of control blocks, etc. Where information is available on actual generation parameters, it should be included in the MEM input file.

The calculation of dynamic storage (buffer pool) is not based on the system generation procedure, since it estimates buffers required, not buffers available. The buffer calculation is also done separately for each product, and models the processes by which each product leases and releases buffers. The level of traffic supported by the processor affects the required number of buffers, since a very busy network will require more buffer space than one carrying very little traffic. The MEM calculation assumes a rather high level of activity so as to provide an ample buffer pool.

LINE DEFINITION IN MEM

In parameterizing a MEM 4.0 input file, an accurate description of the communications lines is particularly important. Nearly every product has at least one parameter for number of lines, and it is essential that they be used correctly to get an accurate result.

NOTE

Any line that is affected by a given software product must be parameterized in the input section for that product.

In other words, lines specified for one product will not be included automatically in another product's calculations. The primary example is MAF. Lines specified as MAF lines must also be included in the NCP input section, or else their NCP storage will not be calculated. Similarly, NCP start/stop lines using NTO must be counted in both the NCP and the NTO sections of the input file.

Note that in most cases, the term "line" means a physical communications line attached to this processor. In a few cases, it may include other entities such as sublines, remote lines, or X.25 virtual circuits. See Section 3 for the description of lines for each product.

SECTION 3

MEM PARAMETERS

PARAMETERIZATION

The parameters used in the Memory Estimation Model (MEM) to describe data communication processors are included in different sections of the input file: the NODE section and one section for each program product. Each section contains parameter keywords dependent upon the specific network configuration. The available parameter selections for each of these sections are given in this portion of the manual.

The MEM parameters give the user considerable flexibility in describing an NCR Comten communication processor system's environment. There is, however, extensive use of default parameter values. The user can concentrate on the aspects of the system that are unusual or which the user chooses to model in detail. There are several required parameters under each of the sections. These are highlighted in the parameter description portion of this manual.

A single program product may be modeled in one MEM execution, but a warning will be issued if that product requires another product for actual system operation. For example, NTO requires NCP. A MEM input file that only includes NTO will execute, but a warning will be issued that the configuration is incomplete.

INPUT FILE FORMAT

The input for the Memory Estimation Model consists of a file containing at least two sections. More may be needed depending on the software products to be supported by the NCR Comten processor.

The general format of the input file is shown in Figure 3-1. The NODE section must appear first. The order of the other sections is not important.

- o The NODE section provides general information about the processor (node) being modeled. It also specifies which of the standard NCR Comten communication control program products are included in the node.
- o The software-specific sections follow the NODE section. The software-specific sections are: EP, NCP, MAF, X25, CNS, SRM, SEAC, CAF, NSS, NTO, CAM, MCP, APS, FAM, VIM, CNG, DSM, MSM and DCU. Each of these sections needs to be included only if the corresponding product is selected in the NODE section.

The NODE section must always be included. At least one program product must be selected in the NODE section, and the corresponding product section must be included. No products will be included automatically, even though they may be necessary in a system for successful operation. If a system being modeled includes a particular product, then the MEM input file should include a section for that product. For example, if a MAF system is being modeled and only MAF is specified, MEM will only report MAF storage. NCP storage will not be included.

The first line of each section consists of an @ sign and the name of the section, for example, @NCP. The name immediately follows the @ sign with no blanks between. Within an individual section the parameters pertaining to that section may be coded in any order. More than one parameter is allowed per line, separated by commas.

Most of the parameters described later in this section have default values specified. A parameter must be coded in the input file only if a value different from the default value is desired.

Comments may be included at any point in the MEM input file. A comment is specified by an asterisk and continues to the end of the line. A comment may share a line with any input parameter. Comments may be included for input data readability. They are not used by the MEM program. Figure 3-1 illustrates the use of comments.

```
-----  
* THIS IS A COMMENT LINE  
*  
* THE NODE SECTION FOLLOWS  
  @NODE  
  .  
  .  
  . (General Parameters)  
*  
* THE PRODUCT SECTIONS FOLLOW: ONE FOR  
* EACH PRODUCT NAMED IN THE NODE SECTION  
  @NCP  
  .  
  .  
  . (NCP Parameters)  
*  
  @MAF  
  .  
  .  
  . (MAF Parameters)  
  .  
  .  
  . (additional product sections as needed)  
-----
```

Figure 3-1: General Format for MEM Input

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

PARAMETER FORMAT

The large parameter selection for MEM allows the user to describe in detail the system characteristics affecting storage requirements. Each parameter is specified by means of a data item in the MEM input file. Each data item consists of a keyword, an equal sign, and an appropriate value or list of values. The following coding rules must be observed:

- o A line may contain more than one data item if space permits. Items on the same line must be separated by commas.
- o Each data item must be contained on a single line, except that a multivalued parameter may have its list of values extend onto another line.
- o Blanks may be included anywhere in the data field; they are ignored by the MEM program.

PARAMETER TYPES

There are three different types of MEM parameters. They are:

- o INTEGER: The value of an integer parameter must be a number without a decimal point. Integer keywords frequently begin with N (for "number of").

Example: N BSC LINES = 15,

- o REAL: The value of a real parameter must be a number with a decimal point.

Example: TRUNK LINE SPEED = 9.6,

- o LITERAL: The value of a literal parameter must be an alphanumeric character string.

Example: SOFTWARE PRODUCT = NCP3,

DOCUMENTATION CONVENTIONS

The parameters portion of Section 3 describes the parameters available for the MEM input file. The following documentation conventions are used to describe the coding requirements of the MEM input file:

- o UPPERCASE (capital) letters indicate parameter values which must be coded as shown.
- o LOWERCASE letters indicate parameter values which must be provided by the user.

- o UNDERSCORE - Underscoring indicates the default value for the parameter. This value will be used by MEM if the parameter is not coded. For example, when

a
KEYWORD = b
c

this parameter will default to c when not coded on the input file.

- o INTEGER Values - An integer value for a parameter is indicated by n. When more than one value is required, subscripts are used.

Example: $n_1, n_2, n_3, n_4,$

- o REAL Values - A real value for a parameter is indicated by x.x. When more than one value is required, subscripts are used:

Example: $x.x_1, x.x_2,$

- o LITERAL Values - A literal value for a parameter is indicated by cccc.

- o To clearly indicate required parameters and interdependencies between parameters, the following classifications have been adopted:

- REQUIRED - This parameter must be coded. If it is not present on the input file, MEM will not execute.
- CONDITIONAL - This parameter must be coded whenever certain other parameters appear on the input file. If it is not coded and the other parameters are present, then MEM will not execute.
- OPTIONAL - This parameter need not appear on the MEM input file; if not coded, a default value is determined and MEM will execute.

- o All parameters which may be given multiple values are described as multivalued.

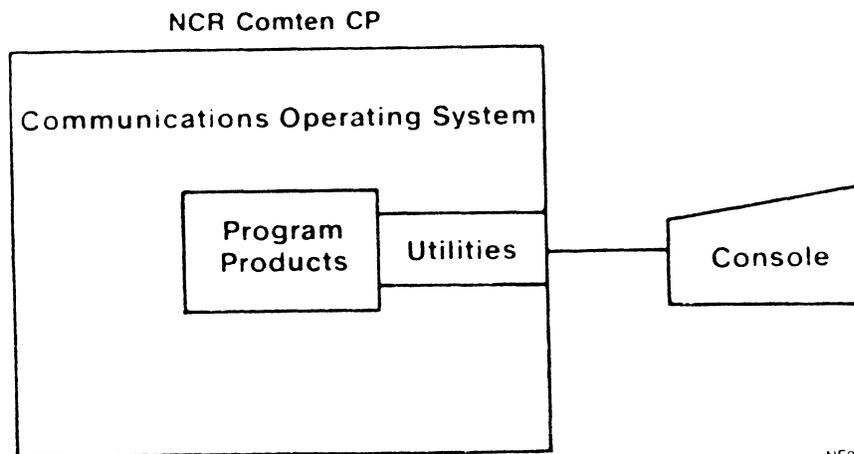
NOTE: The remainder of Section 3 explains all the available parameters for each section of the MEM input file. For a given section, only the keywords listed may be used.

COMTEN PROCESSOR NODE

The NODE section is required for every MEM input file. The NODE section provides for the selection of the communication control software products that are supported in the NCR Comten processor being modeled. If a program product is specified in the NODE section, there must be a corresponding product section later in the MEM input file. If the product section is omitted, MEM will issue a warning and halt. Conversely, if a product section is included in the MEM input file, the product must be specified in the NODE section. If it is not, that product section will be ignored. At least one product must be specified. Figure 3-2 illustrates the basic configuration of an NCR Comten processor.

The NODE section also provides system information that is not strictly product dependent, such as model number, system buffer size, number of MIMs, etc. The system utilities are specified in the NODE section. The specification is analogous to the way utilities are specified in a system generation except that MEM assumes that certain functions are always included; for example, CUTE and some of its commands.

The first line of the input file for this section is @NODE. The following parameters may appear in any order.



NF001

Figure 3-2: Basic Processor Configuration

W TITLE = 'title'

This keyword is optional and specifies the title of the MEM input file to be printed on each output report page header. There is no default for this keyword.

SOFTWARE = cccc, ...,cccc

Required

This multivalued literal parameter specifies all the program products included in this NCR Comten processor. The options that can be specified are:

- APS - This specification indicates the Application Program Support.
- CAF - This specification indicates the Communications Alerting Facility.
- CAM - This specification indicates the Communications Access Method.
- CNG - This specification indicates Comten Networking Gateway.
- CNS - This specification indicates the Communications Networking System.
- DCU - This specification indicates the Data Communications Utility.
- DSM - This specification indicates the Display System Manager.
- EP - This specification indicates Emulation Processing.
- FAM - This specification indicates the File Access Method.
- MAF - This specification indicates the Multiple Access Facility.
- MCP - This specification indicates the Message Control Program.
- MSM - This specification indicates the Multiple Session Manager.
- NCP - This specification indicates the Advanced Communications Facility/
Network Control Program.
- NSS - This specification indicates Network Support Services.
- NTO - This specification indicates the Network Terminal Option.
- SEAC- This specification indicates Statistics and Extended Access Control.
- SRM - This specification indicates the Subarea Routing Manager.
- VIM - This specification indicates the VRX Interface Module.
- X25 - This specification indicates the Interface to Public Data Networks.

Specify the character strings for all software in this NCR Comten processor. A comma must follow each character string. For each program product specified, the MEM input file must include a corresponding product section. There is no default value for this parameter.

COS VERSION = 90
50
20
56

Required

This literal parameter specifies the version of the Communications Operating System included in this NCR Comten processor. The options that can be specified are:

- 90 - This specification indicates COS2/90 software.
- 50 - This specification indicates COS2/50 software.
- 20 - This specification indicates COS2/20 software.
- 56 - This specification indicates COS2/56 software.

There is no default value for this parameter.

COS RELEASE = 1
3
4

Required

This literal parameter specifies the release number of the Communications Operating System included in this NCR Comten Processor. The options that can be specified are:

- 1 - This specification indicates Release 1. This is valid only for COS2/90.
- 3 - This specification indicates Release 3. This is valid for COS2/90, COS2/50, and COS2/20.
- 4 - This specification indicates Release 4. This is valid for COS2/90 and COS2/56.

There is no default value for this parameter.

NODE SECTION

MODULES = cccc, ..., cccc

This multivalued literal parameter specifies the modules included in this NCR Comten processor. Some of the options are system oriented, while others are product related. For example, RIL can be included in any system, but STAR is only appropriate for a system with CNS. Any of these options may be specified in the NODE section, but it may be more convenient to specify the product related modules in the product sections. The options that can be specified are:

- CHU - This specification indicates the NCP Console Host Utility module. It may be specified in the NCP section.
- CIRW - This specification indicates the Core Image Cassette Tape Read/Write module. An NSS section is needed to include this storage.
- DKIN - This specification indicates the Diskette Initialization module.
- LTU - This specification indicates the Line Termination Utility module.
- MPAD - This specification indicates the Message Processing and Definition module. It may be specified in the EP section.
- RIL - This specification indicates the Remote Initial Load module. It may be specified in the CNS section.
- SILS - This specification indicates the Site Initiated Line Switching module.
- STAR - This specification indicates the Site Trunk Analysis Routine. It may be specified in the CNS section.

Specify the character strings for all modules in this NCR Comten processor. A comma must follow each character string. There is no default value for this parameter; if nothing is specified, none of these modules will be included.

These options are the same as those which can be specified in a system generation for the MODULES= keyword on the CMTCCM macro. However, for simplicity, some generation options are assumed by MEM to be included and are not listed above. The Extended Console Utilities (CUTE) is included in all systems. X.25 Utilities (X25U) or the Domain Management Facility (DMF) are included whenever an X.25 section or a CAM section, respectively, is included. Data Link Control Utilities (DLCU), High-speed Link Control Utilities (HLCU) or Comm Base Control Utilities (CBU) are included whenever DLC-MIM, HLC-MIM or a Comm Base, respectively, is included.

UTILITIES = cccc, ..., cccc

This multivalued literal parameter specifies the utilities included in this NCR Comten processor. Some of the options are system oriented, while others are product related. For example, IPLD can be included in any system, but MAFU is only appropriate for a system with MAF. Any of these options may be specified in the NODE section, but it may be more convenient to specify the product related utilities in the product section. The options that can be specified are:

- ALL - This specification indicates that all the utility options are to be included. Those which are product related will be included only if that product is included.
- BCST - This specification indicates the Emulation Broadcast Utility (BCASTU). It may be specified in the EP section.
- CBU - This specification indicates the Comm Base Utility.
- DLIO - This specification indicates the Display Line I/O Control Storage Function.
- DMPU - This specification indicates the Data Message Processor Utilities. It may be specified in the CNS section.
- DRC - This specification indicates the Display Remote Configuration function for SS1. It may be specified in the EP section.
- DRID - This specification indicates the Display RID function. It may be specified in the NCP section.
- DTQC - This specification indicates the Display TQCB (DTQCB) function. It may be specified in the NCP section.
- DTYP - This specification indicates the Display Line and Subchannel Characteristics Function.
- EDIT - This specification indicates the HCASD Editor Utilities function. It may be specified in the CAM section.
- EXEC - This specification indicates the HCASD EXEC Utilities function. It may be specified in the CAM section.
- IPLD - This specification indicates the Initial Program Load Device control commands.
- LMSS - This specification indicates the NCP Start/Stop LIM Trace (LIMSS). It may be specified in the NCP section.
- MAFB - This specification indicates the MAF Broadcast Facility (MAFBC). It may be specified in the MAF section.

NODE SECTION

- MAFU - This specification indicates the MAF console utility. It may be specified in the MAF section.
- NCPS - This specification indicates the Display NCP Channel Statistics (NCPST) commands. It may be specified in the NCP section.
- NSWP - This specification indicates the Swap NCP Lines (NSWAP) commands. It may be specified in the NCP section.
- PMF - This specification indicates the Performance Management Facility. It may be specified in the NCP section.
- RILU - This specification indicates the Remote Initial Load Console Utilities. It may be specified in the CNS section.
- SLDN - This specification indicates the Slowdown (SLODWN) commands.
- SNA - This specification indicates the NCP SNA Link Scheduler Trace. It may be specified in the NCP section.
- TRAC - This specification indicates the Trace Function.

Specify the character strings for all utilities in this NCR Comten processor. A comma must follow each character string. There is no default value for this parameter; if nothing is specified, none of these utilities will be included.

These options are the same as those which can be specified in a system generation for the UTILITY= keyword on the CMTCCM macro, except shortened to four characters. However, for simplicity, some generation options are assumed by MEM to be included and are not listed above. These are: CAMRAM, CIADDR, CIMD, DALL, DBFR, ENABLE, FIND, MFH, RESET, SMON, STATUS, and SYSRST. SWAP is included if an EP section is included in the MEM input.

FEATURES = cccc, ..., cccc

This multivalued literal parameter specifies special system features included in this NCR Comten processor. The options that can be specified are:

- ABRD - This specification indicates the Automatic Baud Rate Detection feature.
- CSET - This specification indicates that the program load device is a cassette. NOTE: Specify either DSKT or CSET, but not both.
- CSUP - This specification indicates that the C Runtime Support code is included.
- DIAL - This specification indicates the Automatic Host Dial Out feature.
- DSKT - This specification indicates that the program load device is a diskette. This is the default value.

HCSD - This specification indicates the High Capacity Auxiliary Storage Device is included.

RRR - This specification indicates the Rapid Restart and Recovery of subchannels feature.

LODH - This specification indicates Load/Dump History feature in included.

Specify the character strings for all features included in this NCR Comten processor. A comma must follow each character string. The default value for this parameter is DSKT.

SITE = cccc
blank

This literal parameter specifies this NCR Comten processor's site name. If supplied, this name will appear on the summary pages of the output report. The name must be four characters or less. The default value for this parameter is blank; no name will be printed.

MODEL = nnnn
5665

This integer parameter indicates this NCR Comten processor's model. The options that can be specified are:

3650 - This specification indicates the NCR Comten model 3650.

3670 - This specification indicates the NCR Comten model 3670.

3690 - This specification indicates the NCR Comten model 3690.

5620 - This specification indicates the NCR Comten model 5620.

5655 - This specification indicates the NCR Comten model 5655.

5660 - This specification indicates the NCR Comten model 5660.

5665 - This specification indicates the NCR Comten model 5665. This is the default value.

5675 - This specification indicates the NCR Comten model 5675.

The default value for this parameter is 5665.

SYSTEM BUFFER SIZE = n

This integer parameter specifies this NCR Comten processor's system buffer size in bytes. The value specified must be an integer in the range of 56 to 248, inclusive. When calculating buffer requirements, MEM uses this value but also allows for necessary buffer overhead. This overhead is determined according to the software products that are included in the system.

The default value for this parameter varies according to the product or combination of products that is included in the system. For an NCR Comten processor with CNS and either MAF or NCP, the default is 128. For a system with SEAC, the default is 120. For MAF without CNS, the default is 108. For CNS alone, the default is 100. For all others, the default is 88. The largest applicable default will be selected.

N MIMS = n

This integer parameter specifies the number of modem interface modules attached to this NCR Comten processor. The value specified must be an integer in the range of 1 to 64, inclusive. The maximum valid value is 8 for a 3650, 24 for a 3670, 32 for a 3690, 8 for a 5620XP, and 64 for a 5655, 5660, 5665 or 5675. This total should include all DLC MIMs, HLC MIMs, and Comm Bases.

The default value for this parameter is the minimum number of MIMs required to contain the total number of physical communication lines parameterized for this processor.

N TILS LINES = n
0

This integer parameter specifies the number of lines defined to Terminal Initiated Line Switching (TILS) at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SILS LINES = n
0

This integer parameter specifies the number of lines defined to Site Initiated Line Switching (SILS) at this NCR Comten processor. If this parameter is used, it is not necessary to specify SILS on the MODULES= parameter. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N IBM HOSTS = n

This integer parameter specifies the number of IBM hosts attached to this NCR Comten processor via channel interface adapters. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0, if one or more NCR hosts are specified; otherwise, the default is 1.

N NCR HOSTS = n
0

This integer parameter specifies the number of NCR hosts attached to this NCR Comten processor via bit serial links. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

RPQ ADDITIONS = n
0

This integer parameter specifies the size in bytes of any RPQ software modules in this NCR Comten processor. The default value for this parameter is 0.

EXTENDED

LETTER

REPORT FORMAT = BRIEF

EXTENDED, LETTER

EXTENDED, BRIEF

This multivalued literal parameter indicates the MEM output report format. The options that can be specified are:

EXTENDED - This specification indicates that the standard 132 column MEM output report will be generated.

LETTER - This specification indicates that an 80 column MEM output report will be generated.

BRIEF - This specification indicates that only the first two pages of the **LETTER** output report will be generated.

The default value for this parameter is **EXTENDED**.

NODE SECTION

**REPORT OPTIONS = ECHO, NO ECHO
COVER, NO COVER**

This multivalued literal parameter indicates the MEM output options format. The options that can be specified are:

- ECHO - This specification indicates that an echo of the input file will be included in the MEM output report. This is the default.
- NO ECHO - This specification indicates that an echo of the input file will not be included in the MEM output report.
- COVER - This specification indicates that a cover will be included in the standard 132 column MEM output report.
- NO COVER - This specification indicates that a cover will not be included in the standard 132 column MEM output report. This is the default.

**FAULT JRNL SIZE = n
32**

This integer parameter specifies the size in kilobytes of the 56X0 fault journal. A minimum of 2K is required, expandable by 2K increments to available storage. The fault journal will be added to the NCR Comten processor buffer requirements if no HCASD is specified. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 32K.

**CONSOLE JRNL SIZE = n
25**

This integer parameter specifies the size in kilobytes of the 56X0 console journal. The console journal will be added to the NCR Comten processor buffer requirements if no HCASD is specified. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 25K.

**N DLC MIMS = n
0**

This integer parameter specifies the total number of DLC-MIMs for this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

See Table 3-1.

N DLC MIM LINES = n

This integer parameter specifies the total number of DLC lines for all DLC-MIMs for this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N DLC MIMS parameter.

N HLC MIMS = n
0

This integer parameter specifies the total number of HLC-MIMs for this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

See Table 3-1.

N HLC MIM LINES = n

This integer parameter specifies the total number of HLC lines for all HLC-MIMs for this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N HLC MIMS parameter.

N 8 LINE COMM BASES = n
0

This integer parameter specifies the total number of 8 Line Communication Bases for this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

See Table 3-1.

N 16 LINE COMM BASES = n
0

This integer parameter specifies the total number of 16 Line Communication Bases for this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

See Table 3-1.

NODE SECTION

N COMM BASE LINES = n

This integer parameter specifies the total number of Communication Base lines for all CBs at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the total of the values specified for the N 8 LINE COMM BASES and N 16 LINE COMM BASES parameters.

The following chart illustrates the valid programmable line handler configurations:

Table 3-1: VALID PROGRAMMABLE LINE HANDLER CONFIGURATIONS

COS2 SOFTWARE	DLC-MIM	HLC-MIM	COMM BASE
COS2/90 R1	X		
COS2/90 R3	X	X	
COS2/50 R3	X		
COS2/20 R3			X
COS2/90 R4	X	X	X
COS2/56 R4 (5620)			X
COS2/56 R4 (5660)	X	X	X

DISPTRC = n
1

This integer parameter specifies the size of the Dispatcher Trace Table in increments of K (1024) word entries. This corresponds to the value specified for the DISPTRC= keyword on the CMTCCM macro in the NDP generation. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1.

NUC ERR SIZE = n
1024

This integer parameter specifies the size in words of the Nucleus Error Trace Table. This corresponds to the value specified for the NETTSIZ= keyword on the CMTCCM macro in the NDP generation. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1024.

PHR SIZE = n
1024

This integer parameter specifies the size in words of the PHR table. This corresponds to the value specified for the PHRSIZ= keyword on the CMTCCM macro in the NDP generation. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1024.

STACKS = n
1024

This integer parameter specifies the size in words of the stacks used by the C runtime support modules. This corresponds to the total of the values specified for the STACKS= keyword on the CMTCCM macro in the NDP generation. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1024.

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

ADVANCED COMMUNICATION FUNCTION/NETWORK CONTROL PROGRAM - ACF/NCP

This section describes the MEM parameters that determine ACF/NCP storage requirements. The ACF/NCP software product controls communication line resources under direction of VTAM-like access methods. The access method may be an actual VTAM or TCAM residing in a channel-attached IBM host, or it may be a processor resident software module such as MAF, CAM, or SRM. Figure 3-3 illustrates a basic ACF/NCP configuration.

The following considerations should be remembered when including @NCP on a MEM input file. First, NCP must be listed among the supported software products under @NODE. Second, it is essential to include under @NCP all the communication line resources from each access method that is driving ACF/NCP. For example, in an NCR Comten processor configured with MAF, CAM, or SRM, the N BSC LINES under @NCP must include all BSC lines specified under @MAF, @CAM, or @SRM. ACF/NCP makes no distinction between these lines and builds the same tables for each resource, regardless of the access method. Carefully note the default values for the @NCP parameters. The N SUBCHANNELS parameter defaults to 1.

When the only access methods are processor resident, there are no NCP subchannels and N SUBCHANNELS must be set to 0. Otherwise, MEM will assume there is one NCP subchannel, and count the appropriate modules and control blocks. Refer to the discussion following the N SUBCHANNELS parameter. Finally, if X.25 software is present, ACF/NCP builds the same tables for virtual circuits as for the corresponding conventional circuits. Therefore, virtual circuits must be included in determining the appropriate @NCP parameters.

ACF/NCP3 R2E and above can use X.21 circuits, both switched and leased, for communication lines. ACF/NCP builds the same tables for X.21 leased circuits as for the corresponding conventional circuits. Therefore, the number of X.21 leased circuits is included in the total number of SNA lines, N SNA LINES. MEM offers support for both X.21 switched circuits with the Short Hold Mode (SHM) feature only, and X.21 SHM switched circuits with the Multiple Port Sharing (MPS) feature. Refer to the discussions following the N X21 SHM LINES, N MPS SESSION LINES, N MPS PORT LINES, and N MPS SHARED POOLS parameters.

The first line of the input file for this section is @NCP. The following parameters may appear in any order.

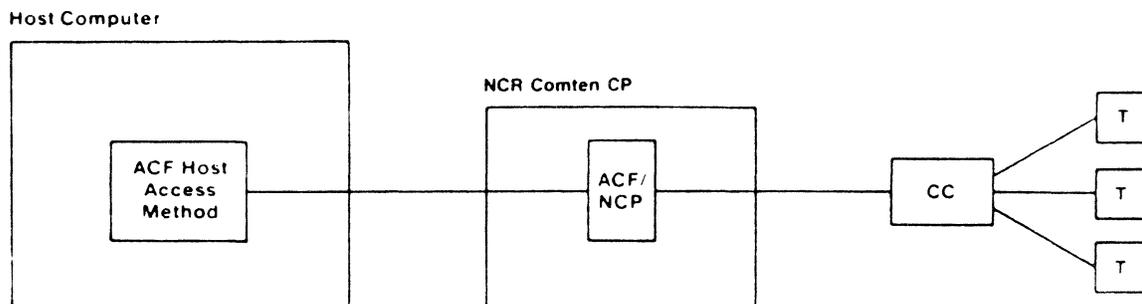


Figure 3-3: ACF/NCP Configuration

14FC05

ACF/NCP SECTION

NCP3
SOFTWARE PRODUCT = NCV2
NV40
NV42

Required

This literal parameter specifies the version of ACF/NCP software for this NCR Comten processor. The options that can be specified are:

- NCP3 - This specification indicates ACF/NCP3.
- NCV2 - This specification indicates ACF/NCP V2.
- NV40 - This specification indicates ACF/NCP V4.0.
- NV42 - This specification indicates ACF/NCP V4.2.

There is no default value for this parameter.

1
RELEASE = 1E
2E

Required

This literal parameter specifies the software product release for the version of ACF/NCP for this NCR Comten processor. This parameter depends upon the version of ACF/NCP specified under SOFTWARE PRODUCT. The options that can be specified are:

- 1 - This specification indicates Release 1. It is valid only for NV42.
- 1E - This specification indicates Release 1E. It is valid for NCP3, NCV2, and NV40.
- 2E - This specification indicates Release 2E. It is valid only for NCP3.

There is no default value for this parameter.

MODULES = cccc, ..., cccc

This multivalued literal parameter indicates the inclusion of specified NCP software modules in this NCR Comten processor. These modules are selected by the system user through the Comten system generation. The options that can be specified are:

CHU - This specification indicates the Console Host Utility (CHU) module.

SILS - This specification indicates the NCP interface modules to Site Initiated Line Switching (SILS). MEM will also automatically include the SILS module on its COS report.

If this parameter is omitted and the above options are not specified under @NODE, neither will be counted by MEM. A comma must follow each character string. There is no default value for this parameter.

UTILITIES = cccc, ..., cccc

This multivalued literal parameter indicates the inclusion of the specified NCP software utilities in this NCR Comten processor. These utilities are selected by the system user through the system generation. The options that can be specified are:

DRID - This specification indicates the Display Resource Identification (DRID) utility.

DTQC - This specification indicates the Display Task Queue Control Block (DTQCB) utility.

LMSS - This specification indicates the trace for the Start/Stop Line Interface Module (LIMSS) utility.

NCPS - This specification indicates the NCP Statistics (NCPST) utility.

NSWP - This specification indicates the NCP Swap (NSWAP) utility.

PMF - This specification indicates the Performance Measurement Facility (PMF) utility.

SNA - This specification indicates the trace for the SNA Link Scheduler (SNA) utility.

If this parameter is omitted and the above options are not specified under @NODE, none of the above modules will be counted by MEM. Specify the character strings for all software utilities in this processor.

A comma must follow each character string. There is no default value for this parameter; if nothing is specified, no utilities will be included.

FEATURES = cccc, ..., cccc

This multivalued literal parameter indicates the inclusion of specified NCP software features. These features are selected by the system user through the system generation. The options that can be specified are:

- BLKH - This specification indicates that Block Handlers are a feature of this system.
- CSM - This specification indicates that Critical Situation Message is a feature of this system.
- DYNA - This specification indicates that Dynamic Reconfiguration is a feature of this system.
- ENA - This specification indicates that Extended Network Addressing is a feature of this system.
- LPDA - This specification indicates that the Link Problem Determination Aids facility is a feature of this system.
- MTA - This specification indicates that Multiple Terminal Access is a feature of this system.
- NPA - This specification indicates that the Network Performance Analyzer is a feature of this system. This is valid only for ACF/NCP V2 R1E and above.
- SWLN - This specification indicates that switched line support is a feature of this system.
- SNI - This specification indicates that SNA Network Interconnection is a feature of this system.

If this parameter is omitted, none of the code for the above features will be counted by MEM. Specify the character strings for all software features in this NCR Comten processor. A comma must follow each character string. There is no default value for this parameter; if nothing is specified, no features will be included.

N SUBCHANNELS = n
1

This integer parameter specifies the number of NCP subchannels at this NCR Comten processor.

The value must be in the range from 0 to 8, inclusive. The default value for this parameter is 1.

NOTE: The following illustrates systems that should not allow this parameter to default:

- Remote NCP (no host attached)
- MAF systems with EP hosts exclusively
- Remote MAF systems
- CAM systems

There is no NCP subchannel for these systems. A value of 0 should be specified.

N SUBAREAS = n
3

This integer parameter specifies the maximum number of subareas that can be addressed from this NCR Comten processor. In a multinode configuration with CNS or ACF trunks, count each NCP, each VTAM/TCAM, and each VTAM-like access method, i.e., MAF or CAM. This parameter must have a value in the range from 3 to 255. Following the system generation, MEM will round the value of this parameter to the next power of two, minus one. The default value for this parameter is 3.

N SS LINES = n
0

This integer parameter specifies the number of start/stop lines controlled by NCP at this NCR Comten processor. This count must include all lines specified under NTO. If X.25 is included in the system, this count should include PA2 virtual circuits. Specify a value greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is 0.

N SS TERM = n

This integer parameter specifies the number of start/stop terminals controlled by NCP at this NCR Comten processor. If X.25 is included in the system, this count should include terminals using PA2 virtual circuits. Specify a value greater than or equal to 0 ($n \geq 0$). The default value is the value specified for the N SS LINES parameter.

SS TERM SUPPORT = cccc, ..., cccc
2741

This multivalued literal parameter specifies the types of start/stop terminals controlled by NCP at this NCR Comten processor. The options that can be specified are:

- 1050 - This specification indicates NCP support for the IBM 1050 Data Communications System.
- 2260 - This specification indicates NCP support for IBM 2260 terminals.
- 2740 - This specification indicates NCP support for IBM 2740 communication terminals.
- 2741 - This specification indicates NCP support for IBM 2741 communication terminals. This is the default value.
- 3335 - This specification indicates NCP support for Western Union Teletype-writers TTY 33/35.
- 83B3 - This specification indicates NCP support for ATT 83B3 Selective Calling System.
- WTTY - This specification indicates NCP support for World Trade Teletypewriter Terminals.

Specify the character strings for all types of S/S terminals controlled by NCP at this NCR Comten processor. A comma must follow each character string. The default value for this parameter is 2741.

N BSC LINES = n
0

This integer parameter specifies the number of BSC lines controlled by NCP at this NCR Comten processor. This count must include all BSC lines regardless of the NCP access method. If SRM is not in the system, this parameter is the sum of all BSC lines controlled by VTAM, MAF, or CAM access methods. If SRM is present, this parameter must equal the corresponding parameter under @SRM. If X.25 is included in the system, this count should include PA5A virtual circuits and the lines for PA5D and PA5DSP.

Specify a value greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is 0. If the MEM input does not specify any NCP lines, this parameter is set to 1.

N BSC CLUSTERS = n

This integer parameter specifies the number of cluster controllers on BSC lines at this NCR Comten processor. This includes all control units on lines specified under N BSC LINES. If X.25 is included in the system, this count should include the PA5D and PA5DSP clusters.

Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N BSC LINES parameter.

N BSC TERM = n

This integer parameter specifies the number of terminals on BSC lines at this NCR Comten processor. This must include all terminals on lines specified under N BSC LINES. If X.25 is included in the system, this count should include the PA5D and PA5DSP virtual circuits.

Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N BSC CLUSTERS parameter.

N SNA LINES = n
0

This integer parameter specifies the number of SNA lines controlled by NCP and connecting physical units, Type 1 or Type 2, to this NCR Comten processor. This count must include all SNA lines regardless of the NCP access method that drives the line. If SRM is not in the system, this parameter is the sum of all SNA lines controlled by VTAM, MAF, or CAM access methods. If SRM is present, this parameter must equal the corresponding parameter under @SRM. For an X.25 system this count should include the PA3 virtual circuits and the NPSI virtual circuits. This count should also include any X.21 leased circuits. Specify a value greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is 0.

N SNA PU = n

This integer parameter specifies the number of Type 1 or Type 2 physical units controlled by NCP at this NCR Comten processor. This includes all physical units on lines specified under N SNA LINES. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SNA LINES parameter.

N SNA LU = n

This integer parameter specifies the number of logical units controlled by NCP at this NCR Comten processor. This includes all logical units on lines specified under N SNA LINES. If Dynamic Reconfiguration is an NCP feature for this system, this count should include the logical units in the pool of LUs for Dynamic Reconfiguration. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SNA PU parameter.

N SUBLINES = n
0

This integer parameter specifies the number of CNS sublines defined for NCP traffic to and from remote nodes. NCP requires at least one subline for each CNS trunk over which it can send data. (Normally, one is sufficient.) If this parameter is used, a CNS input section should be included. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N ACF TRUNKS = n
0

This integer parameter specifies the number of ACF trunks controlled by NCP at this NCR Comten processor. Each trunk connects this processor with another Comten processor or IBM 3700 communications processor, physical unit Type 4. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N ACF TRUNK LINES = n

This integer parameter specifies the number of SNA lines comprising all ACF trunks at the NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N ACF TRUNKS parameter.

N X21 SHM LINES = n
0

This integer parameter specifies the number of X.21 switched circuits with the Short Hold Mode (SHM) defined for NCP traffic. This parameter is valid for ACF/NCP3 R2E and above only. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N MPS SESSION LINES = n
0

This integer parameter specifies the number of X.21 switched circuits with the Short Hold Mode (SHM) and Multiple Port Sharing (MPS) features. In the system generation, these lines do not have a real address assigned to them. They are specified as ADDRESS=NONE. This parameter is valid for ACF/NCP3 R2E and above only. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N MPS PORT LINES = n

This integer parameter specifies the number of Multiple Port Sharing (MPS) port lines defined for use by X.21 switched circuits using the Short Hold Mode (SHM) and MPS features. Each MPS port line has a real address specified for it and must be defined in a CMTLINE macro in the system generation. This parameter is valid for ACF/NCP3 R2E and above only. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N MPS SESSION LINES parameter.

N MPS SHARED POOLS = n

This integer parameter specifies the number of Multiple Port Sharing (MPS) shared port pools defined for use by X.21 switched circuits with the Short Hold Mode (SHM) and MPS features. This parameter corresponds to the number of SHRPOOL macros defined in the system generation. This parameter is valid for ACF/NCP3 R2E and above only. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1 if the value specified for N MPS SESSIONS LINES is greater than 0. Otherwise, the default value is 0.

INPUT MSG LENGTH = n
30

This integer parameter specifies the average input message length in characters for NCP traffic at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 30 characters.

OUTPUT MSG LENGTH = n
300

This integer parameter specifies the average output message length in characters for NCP traffic at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 300 characters.

MAX RES FOR NPA = n

This integer parameter specifies the maximum number of resources eligible for NPA collection. This corresponds to the value specified for the MAXCOLL= keyword on the virtual NPA LU macro in the NDP generation. The default value for this parameter is the number of lines plus 10.

N BSC LPDA LINES = n

This integer parameter specifies the number of BSC lines defined by the N BSC LINES keyword which use the LPDA feature. The default value is the value specified for the N BSC LINES parameter.

N SNA LPDA LINES = n

This integer parameter specifies the number of SNA lines defined by the N SNA LINES keyword which use the LPDA feature. The default value is the value specified for the N SNA LINES parameter.

=====
| The following keywords are valid for FEATURES = SNI only. |
=====

N ADJACENT NETWORKS = n
1

This integer parameter specifies the number of networks to which the SNI node is attached. This keyword corresponds to the number of NETWORK macros that are coded in the NDP generation. Specify an integer that is greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1.

N GATEWAY NAUS = n

This integer parameter specifies the size of the pool of dynamic resources for cross-network sessions along with the number of predefined cross-network resources which are defined by both the native network and the adjacent network(s) in the system generation. This corresponds to the sum of the GWNAU macro NUMADDR= keyword entries added to the number of GWNAU macros for which the NAME= keyword is coded in the NDP generation. Specify an integer that is greater than or equal to 0 ($n \geq 0$). The default value for this parameter is $4 * N \text{ HOST SUBAREAS}$.

N DEST SUBAREAS = n

This integer parameter specifies the number of destination subareas to which at least one explicit route (ERN) is defined. This corresponds to the total number of PATH macro DESTSA= keywords and PU macros with SUBAREA= keywords coded in the NDP generation. Specify an integer that is greater than or equal to 0 ($n \geq 0$). The default value for this parameter is $N \text{ HOST SUBAREAS} + N \text{ ACF TRUNKS}$.

N EXPLICIT ROUTES = n

This integer parameter specifies the number of explicit route control blocks (ERBs) which will be built. It corresponds to the total number of ERN= keywords which are coded on all of the PATH macros in the NDP generation, added to the number of PU macros with SUBAREA= coded for an INN link to NCP 2.1. Specify an integer that is greater than or equal to 0 ($n \geq 0$). The default value for this parameter is $4 * N \text{ DEST SUBAREAS}$.

N HALF SESSIONS = n

This integer parameter specifies the number of half session control blocks (HSCBs) that will be built. It corresponds to the sum of the GWNAU macro NUMSESS= keyword values and the BUILD macro HSBPOOL= keyword value in the NDP generation. Specify an integer that is greater than or equal to 0 ($n \geq 0$). The default value for this parameter is $2 * N \text{ GATEWAY NAUS}$.

N HOST SUBAREAS = n

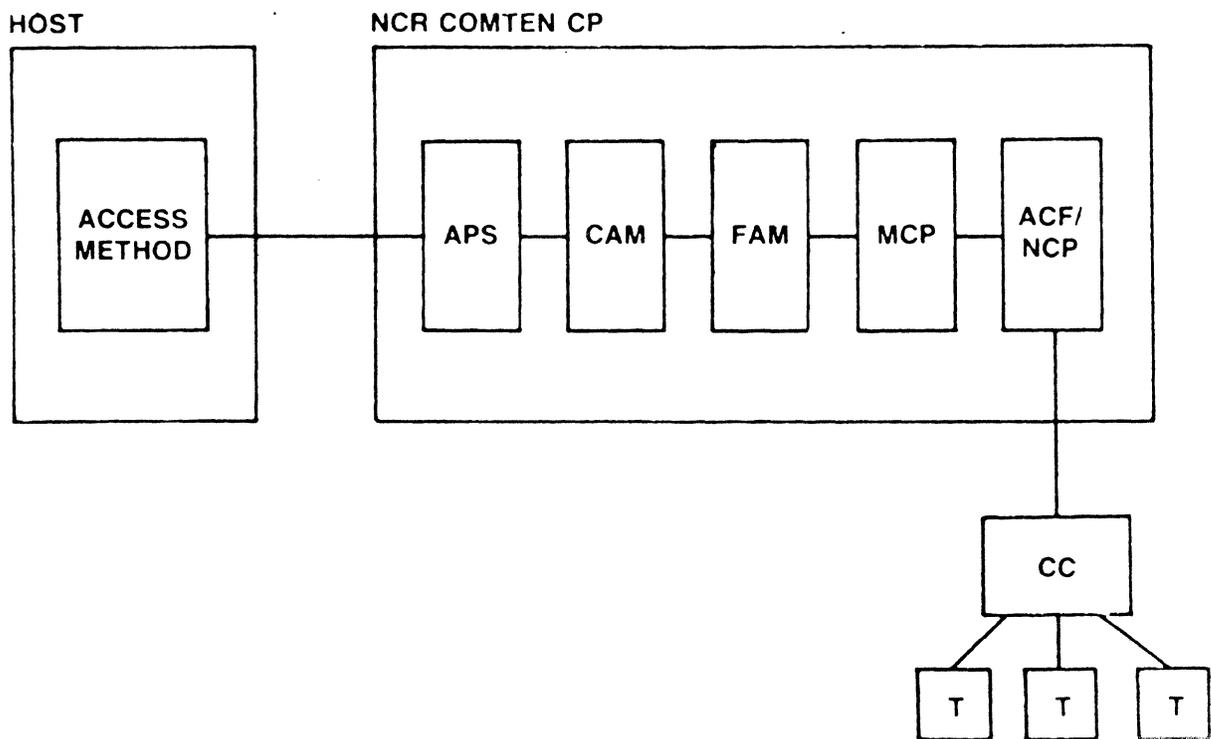
This integer parameter specifies the number of host subareas with which ACF/NCP can concurrently communicate. It corresponds to the sum of the BUILD macro NUMHSAS= keyword values in the NDP generation. Specify an integer that is greater than or equal to 0 ($n \geq 0$). The default value for this parameter is $N \text{ SUBAREAS} / 2$.

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

ADMINISTRATIVE MESSAGE SWITCH - AMS

The following three sections describe the input file for the AMS portion of a MEM input file. The AMS product is based upon the existing products of APS, MCP and FAM. It offers the facility of communication with local and remote terminals in an NCP environment to perform routing, logging, message analysis and other store-and-forward message switching functions.

Figure 3-4 illustrates a basic configuration with APS, MCP and FAM. The MEM input file for an AMS node should include sections for APS, MCP and FAM, as well as sections for CAM and NCP. These sections may occur in any order in the input file.



NE03

Figure 3-4: APS, MCP and FAM Configuration

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

Application Program Support - APS**SOFTWARE PRODUCT = APS**Required

This literal parameter specifies the version of APS software for this NCR Comten processor. The option that can be specified is:

APS - This specification indicates APS.

There is no default for this parameter.

RELEASE = 2ERequired

This literal parameter specifies the software product release of APS for this NCR Comten processor. The option that can be specified is:

2E - This specification indicates Release 2E.

There is no default value for this parameter.

USER APPLICATIONS = n
0

This integer parameter specifies the size in bytes of any user-supplied applications which are to be supported by APS in this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

APS BSIZE = n
0

This integer parameter specifies the size in kilobytes of the APS Subpool 0 for this NCR Comten processor. The value specified must be a multiple of 2. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is calculated by MEM to accommodate MCP.

N APS ESP = n
50

This integer parameter specifies the number of APS Event Scheduling Packets for this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 50.

APS SECTION

N APS DISK UNITS = n
1

This integer parameter specifies the total number of disk units available to APS at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1.

N APS TAPE UNITS = n
0

This integer parameter specifies the total number of tape units available to APS at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

Message Control Program - MCP**SOFTWARE PRODUCT = MCP3****Required**

This literal parameter specifies the version of MCP software for this NCR Comten processor. The option that can be specified is:

MCP3 - This specification indicates MCP3 software.

There is no default value for this parameter.

RELEASE = 1E**Required**

This literal parameter specifies the software product release for the version of MCP selected for this NCR Comten processor. The option that can be specified is:

1E - This specification indicates Release 1E.

There is no default value for this parameter.

N SS LINES = n
0

This integer parameter specifies the number of start/stop lines controlled by MCP at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SS TERM = n

This integer parameter specifies the number of start/stop terminals controlled by MCP at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SS LINES parameter.

N BSC LINES = n
0

This integer parameter specifies the number of BSC lines controlled by MCP at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

MCP SECTION

N BSC TERM = n

This integer parameter specifies the number of BSC terminals controlled by MCP at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N BSC LINES parameter.

N SNA LINES = n
0

This integer parameter specifies the number of SNA lines controlled by MCP at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SNA LU = n

This integer parameter specifies the number of SNA logical units controlled by MCP at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SNA LINES parameter.

INPUT MSG LENGTH = n
30

This integer parameter specifies the average input message length in bytes for MCP traffic at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 30 bytes.

OUTPUT MSG LENGTH = n
300

This integer parameter specifies the average output message length in bytes for MCP traffic at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 300 bytes.

N MCP APPL = n
1

This integer parameter specifies the number of applications utilizing MCP at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1.

N MSG HANDLERS = n
4

This integer parameter specifies the total number of MCP message handlers for this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 4.

N MSG KEYS = n
0

This integer parameter specifies the total number of MCP message keys for this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N MSG STATEMENTS = n
360

This integer parameter specifies the total number of MCP message processor statements. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 360.

N MSNF DEVICE TYPES = n
0

This integer parameter specifies the total number of MCP device types with dynamic logon capability for this NCR Comten processor. Specify an integer greater than or equal to 0 but less than or equal to 6 ($0 \leq n \leq 6$). The default value for this parameter is 0.

File Access Method - FAM**SOFTWARE PRODUCT = FAM****Required**

This literal parameter specifies the version of FAM software for this NCR Comten processor. The option that can be specified is:

FAM - This specification indicates FAM software.

There is no default value for this parameter.

RELEASE = 1E**Required**

This literal parameter specifies the software product release of FAM for this NCR Comten processor. The option that can be specified is:

1E - This specification indicates Release 1E.

There is no default value for this parameter.

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

COMMUNICATIONS ALERTING FACILITY - CAF

This section describes the parameters for the Communications Alerting Facility (CAF) section of a MEM input file.

In a single node configuration, CAF provides status and alerting functions for all communications lines attached to this NCR Comten processor. In a multinode configuration, CAF status information and alerting messages can be received from or sent to other processors through CNS. This requires a CNS section for the MEM input file. The network router is required for CAF traffic over CNS; therefore, the input file should also contain an NSS section for remote CAF functions. Figure 3-5 illustrates a single node CAF configuration.

The first line of the input file for this section is @CAF. The following parameters may appear in any order.

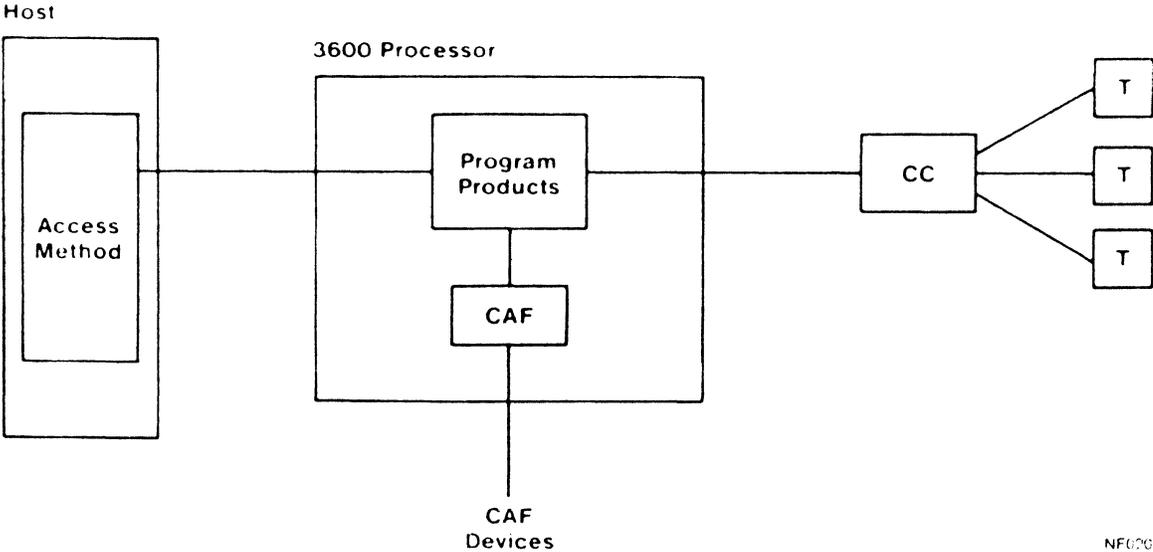


Figure 3-5: CAF Configuration

CAF SECTION

SOFTWARE PRODUCT = CAF1

Required

This literal parameter specifies the version of CAF software for this NCR Comten processor. The option that can be specified is:

CAF1 - This specification indicates CAF1 software.

There is no default value for this parameter.

RELEASE = 1E

Required

This literal parameter specifies the software product release of CAF for this NCR Comten processor. The option that can be specified is:

1E - This specification indicates Release 1E.

There is no default value for this parameter.

N LOC LINES = n
0

This integer parameter specifies the number of locally attached CAF lines. These lines directly connect CAF terminals or printers to this NCR Comten processor. Up to eight CAF displays or printers can be locally attached. The default value for this parameter is 0.

N REM LINES = n
0

This integer parameter specifies the number of remote CAF lines. These lines connect CAF terminals or printers to remote processors and exchange CAF messages with this node. Specify an integer in the range 0 to 8. The default value for this parameter is 0.

CAF DEVICES = cccc,...,cccc

This multivalued literal parameter specifies the types of CAF devices locally attached to this NCR Comten processor. The options that can be specified are:

- ADDS - This specification indicates that an ADDS Viewpoint color CRT is a CAF terminal at this processor.
- COLR - This specification indicates that a color CRT is a CAF terminal at this processor.
- CONS - This specification indicates that the NCR Comten system console is used for logging CAF messages.
- MONO - This specification indicates that a monochrome CRT is a CAF terminal at this processor.
- PRNT - This specification indicates that a CAF printer is locally attached to this processor.

Specify the character strings for each device. A comma must follow each character string. There is no default value for this parameter.

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

COMMUNICATIONS ACCESS METHOD - CAM

This section describes the parameters for the Communications Access Method (CAM) portion of the MEM input file. Figure 3-6 illustrates a basic configuration with CAM.

The physical resources of a CAM network are controlled by ACF/NCP. Therefore, the MEM input file for CAM should include an NCP section.

Using ACF trunking, remote resources can access the NCR host through the CAM/VIM system. The CAM control block storage requirement is the same for remote lines as for locally attached lines. Consequently, the CAM input parameters should include both local and remote resources. However, the NCP input file should include only the local CAM resources.

Path Control provides a common function for managing explicit and virtual routes on behalf of Comten's PU Type 5 products. Currently, both CNG R2E or higher and CAM3 R3E or higher require Path Control. There is no Path Control section in MEM. Input keywords for Path Control are in the @CNG and @CAM sections. Path Control requires code, tables, and buffers, which are reported on the Product Summary Storage page. Path Control tables on a per-session basis are created from system buffers. For CNG, Path Control will use two buffers per session. For CAM, Path Control will use one buffer per device. Each product subarea's destination subareas require two buffers.

The number of buffers required does not depend on the buffer size, meaning a smaller buffer size will require less memory than a larger buffer size.

Buffers estimated for Path Control are in addition to buffers needed for data traffic. The total estimated buffer requirement effectively includes some control blocks.

Path Control requires COS2 R4, ACF/NCP3 R1E or higher, and NSS1 R2E or higher. The first line of the input file for this section is @CAM. The following parameters may appear in any order.

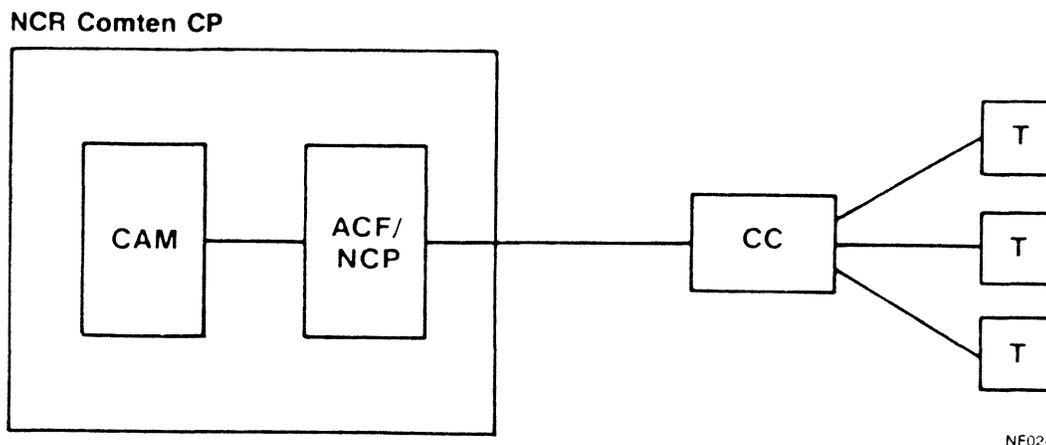


Figure 3-6: CAM Configuration

CAM SECTION

SOFTWARE PRODUCT = CAM3

Required

This literal parameter specifies the version of CAM software for this NCR Comten processor. The option that can be specified is:

CAM3 - This specification indicates CAM3.

There is no default value for this parameter.

**RELEASE = 1E
2E
3E**

Required

This literal parameter specifies the software product release for the version of CAM for this NCR Comten processor. The options that can be specified are:

1E - This specification indicates Release 1E.

2E - This specification indicates Release 2E.

3E - This specification indicates Release 3E.

There is no default value for this parameter.

UTILITIES = cccc, ..., cccc

This multivalued literal parameter indicates the inclusion of the specified NCP software utilities in this NCR Comten processor. These utilities are elected by the system user through the system generation. The options that can be specified are:

EDIT - This specification indicates the HCASD Editor (EDIT) utilities.

EXEC - This specification indicates the HCASD Exec (EXEC) utilities.

If this parameter is omitted and the above options are not specified under @NODE, none of the above modules will be counted by MEM. Specify the character strings for all software utilities in this processor.

A comma must follow each character string. There is no default value for this parameter; if nothing is specified, no utilities will be included.

TERM SUPPORT = cccc, ..., cccc

This multivalued literal parameter specifies the terminal types that are present in this CAM network. The appropriate options should be specified if terminals of that type are either locally attached or remote. The options that can be specified are:

- TWX - This specification indicates that Western Union Teletypewriters are present in this CAM network.
- 2741 - This specification indicates that IBM 2741 Communication Terminals are present in this CAM network.
- 3135 - This specification indicates that IBM System 370 Model 135 processors are present in this CAM network.
- 3271 - This specification indicates that IBM 3271 Cluster Controllers are present in this CAM network.
- 3274 - This specification indicates that IBM 3274 Cluster Controllers are present in this CAM network.
- 3767 - This specification indicates that IBM 3767 Communication Terminals are present in this CAM network.
- 3780 - This specification indicates that IBM 3780/2780 Communication Workstations are present in this CAM network.
- 7950 - This specification indicates that NCR 7950 Communication Terminals are present in this CAM network.
- LU0 - This specification indicates that IBM 3272/3274-1B/3274-1D devices are present in this CAM network.

Specify the character strings for all appropriate values. A comma must follow each character string. There is no default value for this parameter.

CAM SECTION

SUBSYSTEMS = cccc, ..., cccc,

This multivalued literal parameter indicates that certain processor-resident CAM subsystems are present in this CAM network. The options that can be specified are:

- DMFNIF - This specification indicates that the Domain Management Facility (DMF) Network Interface is present.
- HIF 3272 - This specification indicates that the 3272 IBM Host Interface subsystem is present.
- HIF 3274 - This specification indicates that the 3274 IBM Host Interface subsystem is present.
- HIF 3271 - This specification indicates that the 3271 IBM Host Interface subsystem is present.
- HIF CCE - This specification indicates that the CCE Host Interface subsystem is present.
- NCA - This specification indicates that the Network Command Application subsystem is present.
- MCSIA - This specification indicates that the System Information Application subsystem is present.

Specify the character strings for all appropriate values. A comma must follow each character string. There is no default value for this parameter.

N SUBSYSTEMS = n

This integer parameter specifies the number of CAM subsystems present in this CAM network. This count should include the processor resident subsystems specified above under SUBSYSTEMS, as well as the NCR host resident subsystems. Examples are: VIEU, GENESIS, IVS, FILETRNR, and FILETRNS. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the number of subsystems specified for the SUBSYSTEMS parameter.

N SS LINES = n
0

This integer parameter specifies the number of S/S lines in this CAM network. This count includes both locally attached and remote S/S lines. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SS TERM = n

This integer parameter specifies the number of S/S terminals which are owned by the CAM in this network. This includes both locally attached and remote devices. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SS LINES parameter.

N BSC LINES = n
0

This integer parameter specifies the number of BSC lines which are owned by the CAM in this node. This includes both locally attached and remote BSC lines. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0. If no CAM lines are specified on the MEM input file, MEM will default to 1 BSC line.

N BSC CLUSTERS = n

This integer parameter specifies the number of BSC clusters in this CAM network. This includes both locally attached and remote clusters. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N BSC LINES parameter.

N BSC TERM = n

This integer parameter specifies the number of BSC terminals which are owned by the CAM in this node. This includes both locally attached and remote terminals. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N BSC CLUSTERS parameter.

N SNA LINES = n
0

This integer parameter specifies the number of SNA lines to Type 1 or Type 2 physical units in this CAM network. This includes both locally attached and remote lines. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SNA PU = n

This integer parameter specifies the number of Type 1 or Type 2 physical units in this CAM network. This includes physical units on both locally attached and remote lines. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SNA LINES parameter.

CAM SECTION

N SNA LU = n

This integer parameter specifies the number of logical units which are owned by CAM in this node. This includes logical units on both locally attached and remote lines. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SNA PU parameter.

N SWITCHED GROUPS = n
0

This integer parameter specifies the total number of SNA switched groups defined to CAM at this NCR Comten processor. This value corresponds to the number of GROUPECAM macros with TYPE= SWITCH in the CAM generation. This parameter is valid for CAM3 R2E and above only. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SWITCHED PATHS = n

This integer parameter specifies the total number of switched paths defined to CAM for this NCR Comten processor. This value corresponds to the number of PATHCAM macros in the CAM generation. This parameter is valid for CAM3 R2E and above only. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SWITCHED GROUPS parameter.

N SWITCHED PU = n

This integer specifies the total number of switched physical units defined to CAM for this NCR Comten processor. This value corresponds to the number of PUCAM macros in the CAM generation. This parameter is valid for CAM3 R2E and above only. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for parameter is the value specified for the N SWITCHED GROUPS parameter.

N SWITCHED LU = n

This integer parameter specifies the total number of switched logical units defined to CAM for this NCR Comten processor. This value corresponds to the number of LUCAM macros in the CAM generation. This parameter is valid for CAM3 R2E and above only. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SWITCHED PU parameter.

N VIRTUAL RES = n
0

This integer parameter specifies the number of virtual resources specified for use by CAM subsystems which are not explicitly specified by other CAM keywords. This keyword includes DMFNIF, NCA, MCSIA, and HIF 3272 resources. It does not include HIF 3274, HIF 3271, or HIF CCE. This value corresponds to the number of CAMVR macros defined in the CAM generation. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N ACF TRUNKS = n
0

This integer parameter specifies the number of ACF trunks in this CAM network. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N ACF TRUNK LINES = n

This integer parameter specifies the number of ACF trunk lines in this CAM network. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N ACF TRUNKS parameter.

N CAM EXTERNAL CDRM = n
0

This integer parameter specifies the number of external cross domain resource managers defined to use the MSNF feature at this NCR Comten processor. Specify an integer value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N EXTERNAL CDRSC = n

This integer parameter specifies the number of cross domain resources defined at this NCR Comten processor. These devices are not owned by the CAM in this node. This value corresponds to the total comprised of the number of CDRSC macros and the sum of the values specified for the MAXRSC= keyword on the CDRM macros. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 16 times the value specified for the N CAM EXTERNAL CDRM parameter.

CAM SECTION

N DYNAMIC LU = n **0**

This integer parameter specifies the maximum number of logical units in the pool of LUs defined for Dynamic Reconfiguration for this NCR Comten processor. This value corresponds to the number of LUs reserved by the LUDRPOOL macro in the CAM generation. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N EXPLICIT ROUTES = n

This integer parameter specifies the total number of explicit routes defined for CAM and PATH CONTROL in this NCR Comten processor. This keyword applies only to CAM3 R3E and above.

To calculate the value for this parameter, identify the PCDEFN macro for which PRODUCT=CAM in the PATH CONTROL generation. For every PCPATH under this PCDEFN macro, multiply the number of destination subareas times the number of ERn keywords specified. Find the sum of the results.

The value specified for this parameter must be greater than the value specified for the N CAM EXTERNAL CDRM parameter. The default value for this parameter is 4 times the value specified for the N CAM EXTERNAL CDRM keyword.

N VIRTUAL ROUTES ACTIVE = n

This integer parameter specifies the total number of virtual routes which will be active under CAM and Path Control in this NCR Comten processor. This keyword applies only to CAM3 R3E and above. The default value for this parameter is the value specified for the N EXPLICIT ROUTES parameter.

CAM Q = n

This integer parameter specifies the number of control block queue elements that are to be allocated to CAM. This value corresponds to the value specified for the CAMQ= keyword on the HOST macro in the NDP generation. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value is calculated to be two times 80% of the CAM resources (CRSs, terminals, and cross domain resources).

DMF Q = n
20

This integer parameter specifies the number of command queue elements that are available for command processing. This value corresponds to the value specified for the DMFQ= keyword on the CMTCCM macro in the NDP generation. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value is 20.

N HIF 3271 SUBCHANNELS = n

This integer parameter specifies the number of subchannels used by 3271 devices. In the NDP gen, this corresponds to the number of HIF1LN macros. The default is N HIF 3271 CLUSTERS / 32.

N HIF 3271 CLUSTERS = n

This integer parameter specifies the number of 3271 virtual clusters. In the NDP gen, this corresponds to the number of HIF1CU macros. The default is 0, unless N HIF 3271 VIRTUAL RES is specified, in which case the default is N HIF 3271 VIRTUAL RES / 32.

N HIF 3271 VIRTUAL RES = n

This integer parameter specifies the number of 3271 virtual devices. In the NDP gen, this corresponds to the number of HIF1DEV macros. There should be an equal number of CAMVR macros in the CAM gen for these devices. The default is N HIF 3271 CLUSTERS.

N HIF 3274 PU = n

This integer parameter specifies the number of 3274 virtual PUs. In the NDP gen, this corresponds the number of CAMVX macros with the PU= keyword coded. The default is 0, unless N HIF 3274 VIRTUAL RES is specified, in which case the default is N HIF 3274 VIRTUAL RES / 32.

N HIF 3274 VIRTUAL RES = n

This integer parameter specifies the number of 3274 virtual devices. In the @NCP section, an SNA line, PU and LUs should be specified to correspond with these devices. In the NDP gen, this corresponds to the number of CAMVX macros for 3274 devices. There should be an equal number of CAMVR macros in the CAM gen for these devices. The default is N HIF 3274 PU.

N HIF CCE LINES = n

This integer parameter specifies the number of CCE lines. In the NDP gen, this corresponds to the number of HIFCLN macros. The default is N HIF CCE CLUSTERS / 32.

N HIF CCE CLUSTERS = n

This integer parameter specifies the number of CCE virtual clusters. In the NDP gen, this corresponds to the number of HIFCCU macros. The maximum number of clusters per CCE line is 32. The default is 0, unless N HIF CCE VIRTUAL RES is specified, in which case the default is N HIF CCE VIRTUAL RES / 32

N HIF CCE VIRTUAL RES = n

This integer parameter specifies the number of CCE virtual devices. The maximum number of devices per CCE cluster is 32. In the NDP gen, this corresponds to the number of HIFCDEV macros. The default is N HIF CCE CLUSTERS.

HIF CCE TRAN SIZE = n
4000

This integer parameter specifies the maximum length of a message in bytes that will be accepted from the communications line attached host. If CCE lines have different transmission sizes, specify the average value. This value must be within the range of 1000 to 32767. In the NDP gen, this corresponds to the value specified for the HIFCGRP or HIFCLN macros TRANSIZ= keyword. The default is 4000.

N HIF DSP VIRTUAL RES = n
0

This integer parameter specifies the number of DSP virtual devices. Each resource specified should have a User Virtual Circuit specified in the X.25 section. In the NDP gen, this corresponds to the value specified for the HIFDEV macro DEV= or SVCS= keywords. The default is 0.

COMTEN NETWORKING GATEWAY - CNG

This section describes the MEM parameters that determine CNG storage requirements. The CNG software product allows multiple independent networks to be interconnected. CNG resides between the networks and performs address translation between the networks. Each independent network maintains its own addressing scheme thus avoiding addressing restrictions inherent in current SNA networks. Figure 3-7 illustrates a basic CNG configuration.

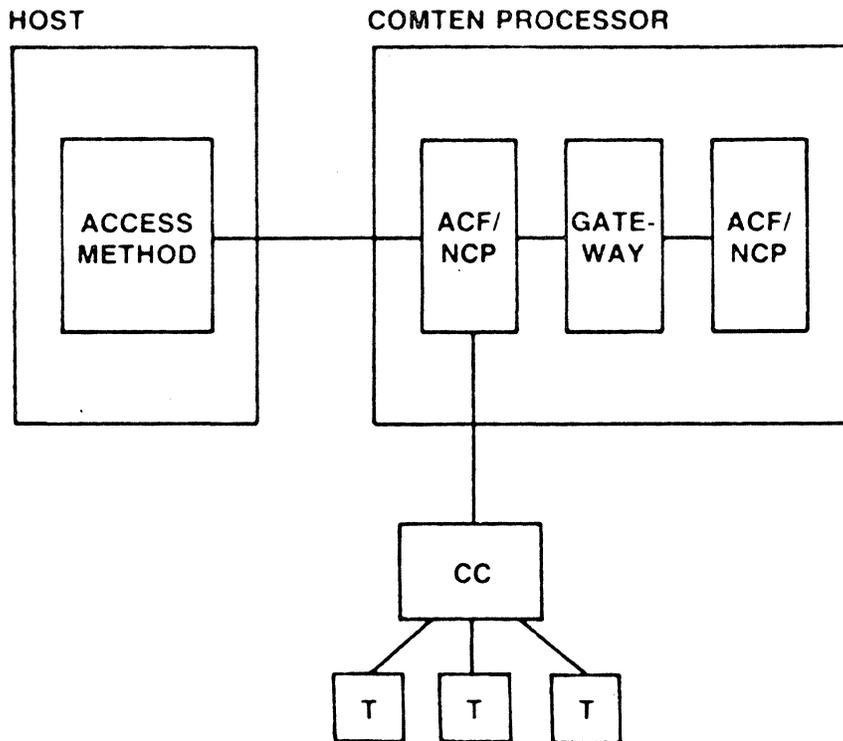
The physical resources of a Gateway network are controlled by ACF/NCP. Therefore, the MEM input should include an NCP section.

Path Control provides a common function for managing explicit and virtual routes on behalf of Comten's PU Type 5 products. Currently, both CNG R2E or higher and CAM3 R3E or higher require Path Control. There is no Path Control section in MEM. Input keywords for Path Control are in the @CNG and @CAM sections. Path Control requires code, tables, and buffers, which are reported on the Product Summary Storage page. Path Control tables on a per-session basis are created from system buffers. For CNG, Path Control will use two buffers per session. For CAM, Path Control will use one buffer per device. Each product subarea's destination subareas require two buffers.

The number of buffers required does not depend on the buffer size, meaning that a smaller buffer size will require less memory than a larger buffer size.

Buffers estimated for Path Control are in addition to buffers needed for data traffic. The total estimated buffer requirement effectively includes some control blocks.

Path Control requires COS2 R4, ACF/NCP3 R1E or higher, and NSS1 R2E or higher. The first line of the input file for this section is @CNG. The parameters for CNG may appear in any order.



NF031

Figure 3-7: CNG Configuration

SOFTWARE PRODUCT = CNGRequired

This literal parameter specifies the version of CNG software for this NCR Comten processor. The option that can be specified is:

CNG - This specification indicates CNG software.

There is no default value for this parameter.

**RELEASE = 1E
2E**Required

This literal parameter specifies the software product release of CNG for this NCR Comten processor. The option that can be specified is:

1E - This specification indicates Release 1E.

2E - This specification indicates Release 2E.

There is no default value for this parameter.

FEATURES = cccc

This literal parameter indicates the inclusion of specified CNG software features. These features are selected by the system user through the system generation. The option that can be specified is:

STIX - This specification indicates that statistics collection is a feature of this system.

**N GATEWAY CDRM = n
2**

This integer parameter specifies the number of Gateway Cross Domain Resource Managers (CDRM) in this NCR Comten processor. This keyword corresponds to the number of GCDRM macros with DOMAIN=OWN in the CNG generation. This parameter must have a value in the range from 2 to 8. The default value for this parameter is 2.

N EXTERNAL CDRM = n

This integer parameter specifies the number of External Cross Domain Resource Managers (CDRM) with which all Gateway CDRMs in this NCR Comten processor will communicate. This keyword corresponds to the total of all values specified for EXCDRM= keywords on all GCDRM macros with DOMAIN=OWN in the CNG generation. The value specified for this parameter must be greater than or equal to the value specified for the N GATEWAY CDRM parameter. The default value for this parameter is 4 times the value specified for N GATEWAY CDRM parameter.

N GATEWAY SUBAREAS = n

This integer parameter specifies the total number of subareas used for all Gateway Cross Domain Resource Managers (CDRM) in this NCR Comten processor. This keyword corresponds to the total number of subareas listed in SUBAREA= keywords on all GCDRM macros with DOMAIN=OWN in the CNG generation. Specify an integer value greater than or equal to the value specified for the N GATEWAY CDRM parameter. The default value for this parameter is the value specified for the N GATEWAY CDRM parameter.

MAXIMUM SESSIONS = n

This integer parameter specifies the maximum number of concurrent sessions which will be allowed for all of the Gateway Cross Domain Resource Managers (CDRM) in this NCR Comten processor. This keyword corresponds to the sum of all MAXSESS= keyword values on all GCDRM macros divided by two. Specify an integer value greater than or equal to the value specified for the N GATEWAY CDRM parameter. The default value for this parameter is the value specified for the N GATEWAY CDRM parameter.

N OUT REQUESTS = n

This integer parameter specifies the maximum number of outstanding requests allowed for all Gateway Cross Domain Resource Managers (CDRM) in this NCR Comten processor. This keyword corresponds to the total of all values specified for GIDTAB= keywords on all GCDRM macros with DOMAIN=OWN in the CNG generation. Specify an integer value greater than or equal to the value specified for the N GATEWAY CDRM parameter. The default value for this parameter is the value specified for the N GATEWAY CDRM parameter.

N EXTERNAL RES = n

This integer specifies the total number of resources defined outside of a given network to which a resource within the given network wants to initiate access. This keyword corresponds to the total number of GCDRSC macros in the CNG generation. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 10 times the value specified for the N GATEWAY CDRM parameter.

N LOCAL ALIASES = n
0

This integer parameter specifies the total number of resources owned by the Gateway Cross Domain Resource Managers (CDRM) in this NCR Comten processor which have been provided with an alias. A resource is typically given an alias if it is to be acquired by an application in another network. This keyword corresponds to the number of TALIAS macros plus the number of GCDRSC macros with the ALIAS= keyword specified in the CNG generation. Specify an integer value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N GCOS NAMES = n
0

This integer parameter specifies the total number of Class Of Service (COS) name translations which are defined in this NCR Comten processor. This keyword corresponds to the number of internal CNG COS names listed in the keyword XLATE= on the GCOS macro in the CNG generation. The default for this parameter is 0.

N DESTINATION SUBAREAS = n

This integer parameter specifies the total number of destination subareas defined for CNG and PATH CONTROL in this NCR Comten processor. This keyword corresponds to the total number of entries in the keyword DESTSA= on the PCPATH macros under PCDEFN macros where PRODUCT=CNG in the PATH CONTROL generation. The value specified for this parameter must be greater than or equal to the value specified for the N GATEWAY CDRM parameter. The default value for this parameter is equal to the value specified for the N GATEWAY CDRM parameter.

N EXPLICIT ROUTES = n

This integer parameter specifies the total number of explicit routes defined for CNG and PATH CONTROL in this NCR Comten processor. This keyword applies only to CNG R2E and above.

To calculate the value for this parameter, identify the PCDEFN macros for which PRODUCT=CNG in the PATH CONTROL generation. For every PCPATH under these PCDEFN macros, multiply the number of destination subareas times the number of ERn keywords specified times the number of product subareas for the corresponding PCDEFN macro. Find the sum of the results.

The default value for this parameter is 4 times the value specified for the N DESTINATION SUBAREAS keyword.

N VIRTUAL ROUTES ACTIVE = n

This integer parameter specifies the total number of virtual routes which will be active under CNG and PATH CONTROL in this NCR Comten processor. This keyword applies only to CNG R2E and above. The default value for this parameter is the value specified for the N EXPLICIT ROUTES parameter.

COMMUNICATIONS NETWORKING SYSTEM - CNS

This section describes the MEM parameters that determine the Communications Networking System (CNS) storage requirements. The CNS program concentrates terminal data and transmits it over communications links between NCR Comten processors. (Refer to Figure 3-8.) Each pair of processors can be joined by, at most, one logical trunk, which may be composed of up to 15 physical circuits (trunk lines). The number of trunks attached to a given node is specified as N TRUNKS, while the total number of physical trunk circuits is given as N TRUNK LINES.

CNS3 can use X.25 virtual circuits as well as physical circuits for trunking. Using the Adaptive Bandwidth Feature, it can establish and release X.25 virtual circuits as needed, depending on the traffic load. A single logical trunk can be composed of both physical trunk circuits and virtual trunk circuits. The type of circuit used is transparent to the user software. The total number of X.25 virtual circuits used for trunking is specified by N CNS3 TRUNK VC. If this parameter is used, an X.25 input section must also be included.

CNS3 R3E can use X.21 circuits, both leased and switched, for trunking. The number of X.21 leased circuits is included in the total number of physical trunk circuits, N TRUNK LINES. The number of X.21 switched circuits used as trunk lines is specified as N X21 TRUNK SC.

The first line of the input file for this section is @CNS. The parameters for CNS may appear in any order.

SUBLINE PARAMETERIZATION

CNS can handle remote communications for any NCR Comten user software, including EP, NCP, MAF, X.25, NSS, SEAC, and CAF. Traffic is routed from these programs through sublines to CNS. Different products have different methods of using sublines, but sublines are required in all cases. See the appropriate product sections for subline parameterization.

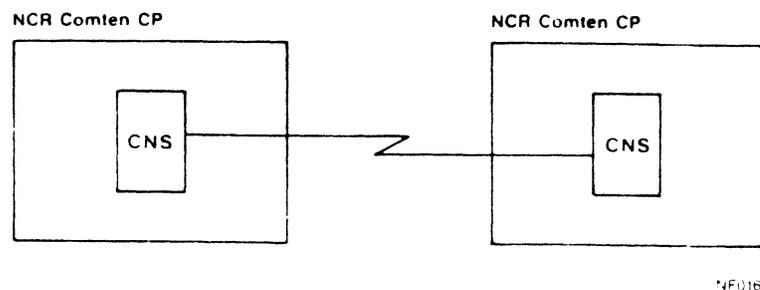


Figure 3-8: CNS Configuration

CNS SECTION

SOFTWARE PRODUCT = CNS3

Required

This literal parameter specifies the version of CNS software for this NCR Comten processor. The option that can be specified is:

CNS3 - This specification indicates CNS3 software.

There is no default for this parameter.

**RELEASE = 1E
 3E**

Required

This literal parameter specifies the software product release of CNS for this NCR Comten processor. The option that can be specified is:

1E - This specification indicates Release 1E.

3E - This specification indicates Release 3E.

There is no default value for this parameter.

MODULES = STAR

This literal parameter specifies the CNS module for this NCR Comten processor. The option that can be specified is:

STAR - This specification indicates the Site Trunk Analysis Routine.

NOTE: For RIL, refer to the NODE namelist.

There is no default value for this parameter; if nothing is specified, no modules will be included.

UTILITIES = DMPU

This literal parameter specifies the CNS software utility for this NCR Comten processor. The option that can be specified is:

DMPU - This specification indicates the Data Message Processor utilities.

NOTE: For RILU, refer to the NODE namelist. The default value for this parameter is blank; if nothing is specified, no utilities will be included.

N TRUNKS = n
1

This integer parameter specifies the number of logical trunks attached to this NCR Comten processor. Specify an integer greater than 0 ($n > 0$). The default value for this parameter is 1.

N TRUNK LINES = n

This integer parameter specifies the number of conventional trunk lines and the number of X.21 leased circuits used as trunk lines attached to this NCR Comten processor. Specify an integer greater than 0 ($n > 0$). The default value for this parameter is the value specified for N TRUNKS.

N CNS3 TRUNK VC = n
0

This integer parameter specifies the total number of X.25 virtual circuits used as trunk lines by this NCR Comten processor. If this parameter is used, an X.25 section should be included in the MEM input file. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N X21 TRUNK SC = n
0

This integer parameter specifies the total number of X.21 switched circuits used as trunk lines by this NCR Comten processor. This parameter is valid for CNS3 R2E only. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

TRUNK LINE SPEED = x.x
9.6

This real parameter specifies the trunk line speed in kilobits per second. This is the average speed of all trunk lines and trunk virtual circuits. Specify a real number greater than 0 ($x.x > 0$). The default value for this parameter is 9.6.

N DMP INN SUBLINES = n
0

This integer parameter specifies the number of CNS sublines controlled by DMP in an intermediate network node. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

DATA COMMUNICATION UTILITY - DCU

This section describes the MEM parameters that determine the Data Communication Utility (DCU) storage requirements. The DCU program product is a component of NCR CP that provides the primary I/O and communications interface between NCR TAM or PRE-TAM host applications and a network of NCR asynchronous (TTY), multi-point asynchronous (MPA) and NCR DLC (In-house and Common Carrier) devices. DCU V2 running on an NCR Comten communications Processor is the successor to the 721 DCU R7.0 hardware/software platform.

The first line of the input file for this section is @DCU. The parameters for DCU may appear in any order.

The most important keywords are the ones specifying Lines, Devices (polled or nonpolled) and Stations.

@NODE

N NCR HOSTS = 1

@DCU

SOFTWARE PRODUCT = DCV2, RELEASE = 1
 FEATURES = NSS * NSS INTERFACE
 N NON-TAM PARTITIONS = 2
 N TAM PARTITIONS = 3
 N TAM HALF PAIRS = 120 * # OF DEVICES GOING TO TAM * 2
 N PAGE MODE TTY LINES = 15 * 1 DEVICE PER LINE
 N LINE MODE TTY LINES = 10 * 1 DEVICE PER LINE
 N MPA LINES = 8
 N MPA POLLED DEVICES = 85 * 75 ARE STAND-ALONE
 N MPA DEVICES = 50 * ATTACHED TO 10 POLLED
 N DLC LINES = 15
 N DLC STATIONS = 60 * MULTI-DROPPED OVER 15 LINES

@NSS

SOFTWARE PRODUCT = NSS2, RELEASE = 1
 NETRTR APPLS = NCR

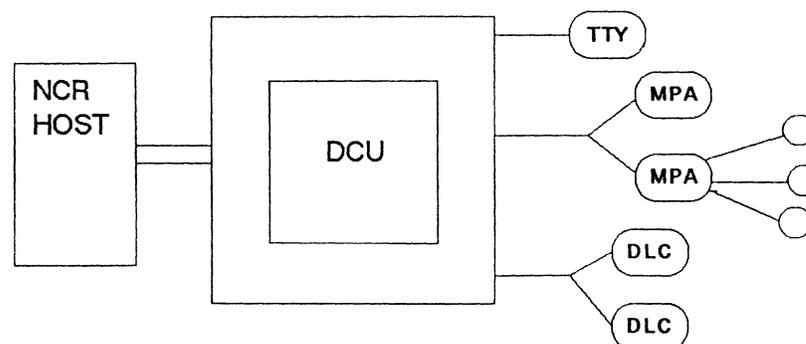


Figure 3-9: DCU Configuration

DCU SECTION

The NCR CP product set consists of two major features that may reside together or independently: DCU and ACS. DCU connects NCR hosts to NCR devices. ACS is parameterized in the @VIM section. DCU requires COS2 R4 and NSS2 R1. ACS requires COS R4, VIM R2, CAM3 R3E and NSS2 R1.

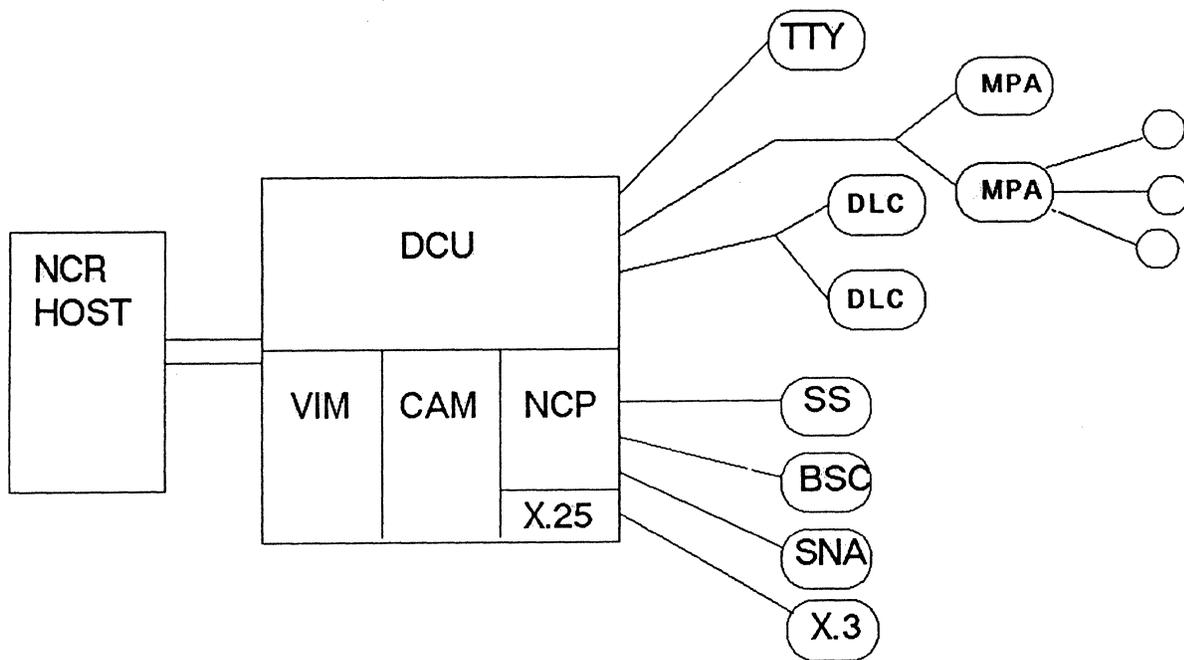


Figure 3-10: NCR CP 1.0 Configuration

SOFTWARE PRODUCT = DCV2Required

This literal parameter specifies the version of DCU software for this NCR Comten processor. The option that can be specified is:

DCV2 - This specification indicates DCU version 2.

There is no default value for this parameter.

RELEASE = 1Required

This literal parameter specifies the software product release for the version of DCU for this NCR Comten processor. The option that can be specified is:

1 - This specification indicates release 1. It is valid for DCU version 2.

There is no default value for this parameter.

FEATURES = cccc

This multivalued literal parameter indicates the inclusion of DCU features. The option that can be specified is:

NSS - This specification indicates that DCU has a Network Router Interface.

There is no default for this parameter.

N NON-TAM PARTITIONS = n
0

This integer parameter specifies the number of Non-TAM host partitions on BSL attached hosts. Only 1 application is permitted per non-TAM partition. Specify an integer greater than or equal to 0 ($n \geq 0$). In the NDP gen, this corresponds to the number of DCUPART macros with HOT=B1B2CT. The default for this parameter is 0.

DCU SECTION

N TAM PARTITIONS = n

This integer parameter specifies the number of TAM host partitions on BSL attached hosts. There may be multiple applications per TAM partition. Specify an integer greater than or equal to 0 ($n \geq 0$). In the NDP gen, this corresponds to the number of DCUPART macros with HOT=VRXTAM coded. The default is N NCR HOSTS, if no Non-TAM applications are specified; otherwise, it is 0.

N TAM HALF PAIRS = n

This integer parameter specifies the number of half pairs of TAM sessions. There may be TAM-to-TAM sessions and TAM-to-device sessions. Specify 2 half pairs for each local TAM application to local device (or station). In the NDP gen, this corresponds to the number of DCUPAIR macros. The default is $(N \text{ TAM PARTITIONS} / \text{sum-of-all-partitions}) * \text{all-local-devices}$.

N PAGE MODE TTY LINES = n
0

This integer parameter specifies the number of locally attached TTY lines with page mode devices. Specify an integer greater than or equal to 0 ($n \geq 0$). In the NDP gen, this corresponds to the number of DCULINE macros with LIT=TTY and PAG=YES coded. The default is 0.

N LINE MODE TTY LINES = n
0

This integer parameter specifies the number of locally attached TTY lines with line mode devices. Specify an integer greater than or equal to 0 ($n \geq 0$). In the NDP gen, this corresponds to the number of DCULINE macros with LIT=TTY and PAG=NO coded. The default is 0.

N MPA LINES = n

This integer parameter specifies the number of locally attached MPA lines. Specify an integer greater than or equal to 0 ($n \geq 0$). In the NDP gen, this corresponds to the number of DCULINE macros with LIT=MPA coded. The default is $N \text{ MPA POLLED DEVICES} / 10$, if this parameter is specified; else it is $N \text{ MPA DEVICES} / 10$, if this parameter is specified; otherwise, it is 0.

N MPA POLLED DEVICES = n

This integer parameter specifies the number of polled devices attached to MPA lines. These devices may be terminals or controllers with attached devices. Specify an integer greater than or equal to 0 ($n \geq 0$). In the NDP gen, this corresponds to the number of DCUCONT macros. The default is N MPA LINES.

N MPA DEVICES = n
0

This integer parameter specifies the number of MPA devices attached to MPA controllers. Specify an integer greater than or equal to 0 ($n \geq 0$). In the NDP gen, this corresponds to the number of DCUDEV1 macros. The default is 0.

N DLC LINES = n

This integer parameter specifies the number of DLC lines. Specify an integer greater than or equal to 0 ($n \geq 0$). In the NDP gen, this corresponds to the number of DCULINE macros with LIT=DLCPT coded. The default is 0, if N DLC STATIONS is not parameterized; otherwise, it is N DLC STATIONS / 64.

N DLC STATIONS = n

This integer parameter specifies the number of DLC stations attached to DLC lines. Specify an integer greater than or equal to 0 ($n \geq 0$). In the NDP gen, this corresponds to the number of DCUSTAN macros. The default is 0, if N DLC LINES is not parameterized; otherwise, it is N DLC LINES.

DCU SECTION

NE-NJ41-302-A

3-70

MEM PARAMETERS

PROPRIETARY DATA

Use requires license from NCR Comten, Inc. or its authorized distributor.

DISPLAY SYSTEM MANAGER - DSM

This section describes the MEM parameters that determine DSM storage requirements. DSM allows all BSC and SNA 3270 devices supported by CAM to access an X.25 HPAD which supports DSP protocol. DSM runs as a CAM application.

The physical devices are controlled by NCP. Therefore, the MEM input deck should contain an NCP section as well as CAM and X.25 sections.

The first line of the input file for this section is @DSM. The following parameters may appear in any order.

Here is a sample DSM section. The keywords that will account for most of the storage are FEATURES, N DEVICES, and N VCS.

```
@DSM
SOFTWARE PRODUCT = DSM1,      RELEASE = 1
FEATURES = DYCN              * DYNAMIC CONFIGURATION
N DEVICES = 300              * TERMINALS AND PRINTERS
N VCS = 600                  * MAXIMUM SESSIONS
N ACQUIRE DEVICES = 10      * GET AT STARTUP
N ACCESS DEVICES = 20        * OPTIONALLY ALLOWED/DENIED
N LOGINS = 3                  * LOGINS TO DSM
N DESTINATIONS = 14          * LIKE TSO, /PRDCMS
N DEVICE DESCRIPTIONS = 30    * REQUIRED TERMINAL SPECS.
N EXPLICIT DEVICES = 10      * JUST THESE DEVICES
FREEMEM = 5                  * 5K BYTES
```

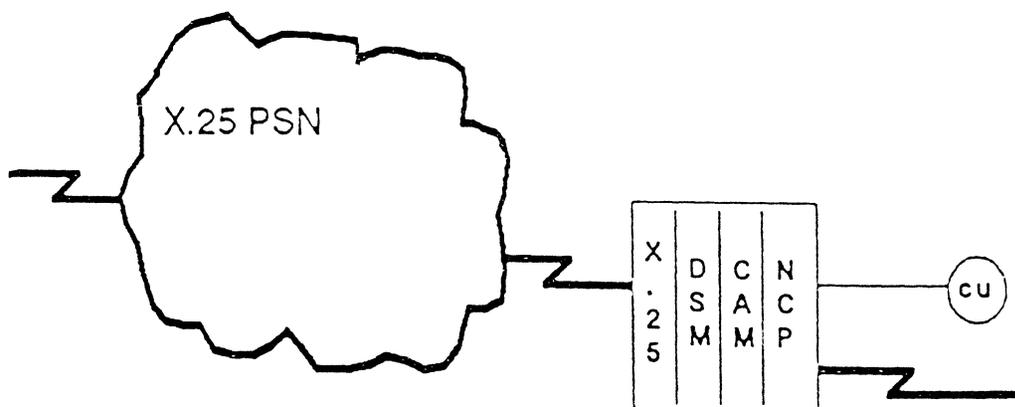


Figure 3-11: DSM Configuration

DSM SECTION

SOFTWARE PRODUCT = DSM1

Required

This literal parameter specifies the version of DSM software for this NCR Comten processor. The option that can be specified is:

DSM1 - This specification indicates DSM1 software.

There is no default value for this parameter.

RELEASE = 1

Required

This literal parameter specifies the software product release of DSM for this NCR Comten processor. The option that can be specified is:

1 - This specification indicates Release 1.

There is no default for this parameter.

FEATURES = cccc

This literal parameter specifies the inclusion of DSM features. The option that can be specified is:

DYCN - This specification indicates that Dynamic Configuration is included in this system.

There is no default for this parameter.

N DEVICES = n
1

This integer parameter specifies the number of devices (terminals and printers) that may use DSM concurrently. This keyword value corresponds to the DEV= keyword of the DTDEV GEN macro. The default is 1.

N VCS = n

This integer parameter specifies the number of sessions that DSM will support at one time. This is the total of devices specified as permanent virtual circuits with the keyword PVC= of the GEN macro DTTERM and the number of switched virtual circuits specified with the SVCS= keyword of the DTSVC macro. A device may have multiple sessions (Quick Switch). The default is N DEVICES.

N ACQUIRE GROUPS = n

This integer parameter specifies the number of groups of devices to acquire when the system is brought up. This corresponds to the number of DTACQUIR GEN macros. The default is 1 if N ACQUIRE DEVICES is parameterized, and if it is not, the default is 0.

N ACQUIRE DEVICES = n

This integer parameter specifies the number of devices (terminals and printer) that DSM will acquire when the system is brought up. This keyword value corresponds to the number of names listed in the keyword NETNAME= for the DTACQUIR macro. The default is N ACQUIRE GROUPS.

N ACCESS GROUPS = n

This integer parameter specifies the number of groups of devices that have permission to logins either explicitly allowed or denied. This keyword value corresponds to the number of DTACCESS GEN macros. The default is 0, unless N ACCESS DEVICES is parameterized, in which case the default is 1.

N ACCESS DEVICES = n

This integer parameter specifies the number of devices for which access to a login is explicitly allowed or denied. Multiple logins may share these lists of devices. This keyword value corresponds to the number of devices listed with the NETNAME= keyword of the GEN macro DTACCESS. The default is N ACCESS GROUPS.

N LOGINS = n1

This integer parameter specifies the total number of logins defined for DSM. This keyword value corresponds to the number of DTLOG GEN macros. The default is 1.

N DESTINATIONS = n

This integer parameter specifies the total number of destinations available for the logins. Each login defined for DSM has its own set of destinations. This keyword value corresponds to the number of DTDEST GEN macros. The default is N LOGINS.

DSM SECTION

N EXPLICIT DEVICE GROUPS = n

This integer parameter specifies the number of groups of devices that have explicit and exclusive access to a destination. This keyword value is the number of logins that have devices declared with explicit screening. This keyword value corresponds to the number of DTLOG macros that have DTDEST macros coded. The default is 0, unless N EXPLICIT DEVICES is parameterized, in which case the default is 1.

N EXPLICIT DEVICES = n

This integer parameter specifies the number of devices that have explicit and exclusive access to a destination. Devices listed here may be permanent virtual circuits defined to X.25 or devices listed by cluster and device address, both of which are specified with the DTTERM GEN macro. The default is N EXPLICIT DEVICE GROUPS.

N DEVICE DESCRIPTIONS = n

This integer parameter specifies the total number of descriptions that exist for devices to determine if a device has the necessary characteristics to access a destination. Each destination has its own descriptions. This keyword value corresponds to the number of DTPOOL macros. The default is N DESTINATIONS - N EXPLICIT DEVICE GROUPS.

N PRINTERS = n
0

This integer parameter specifies the number of printers that have access to DSM. This corresponds to the number of DTINC GEN macros. The default is 0.

FREEMEM = n

This integer parameter specifies the number of 1K (1024) bytes reserved for dynamic configuration. The default is 1 if DYCN is specified for FEATURES, otherwise it is 0.

EMULATION PROCESSING - EP

The Emulation Processing (EP) program product is a family of separate modules (emulators) that control communications between asynchronous or bisynchronous terminals and BTAM or TCAM host applications. Each terminal line is assigned to a specific host subchannel and a specific emulator, which controls the line. The assignment of lines to subchannels and emulators can be made dynamically by TILS, SILS, ABRD, or MSLA; but otherwise, it is a permanent connection. Figure 3-12 illustrates the basic EP configuration.

Emulation software can also be used to process traffic from lines at a remote node. All types of EP traffic use the Communications Networking System (CNS) program product to communicate remotely. If the node under analysis handles EP traffic from other nodes, a CNS section must be included in the input file.

For remote traffic, SDA2 requires the emulator module to be present only in the node directly attached to the host. For this type of traffic, the remote terminal lines (and any intermediate node connections) are controlled by the CNS module, BSWX. There may also be a "stub" of the emulator in the remote node for SDA3.

The SS1 and MLA emulators do not use BSWX, but require the full emulator to be present in each node. MLA operates in remote configurations only.

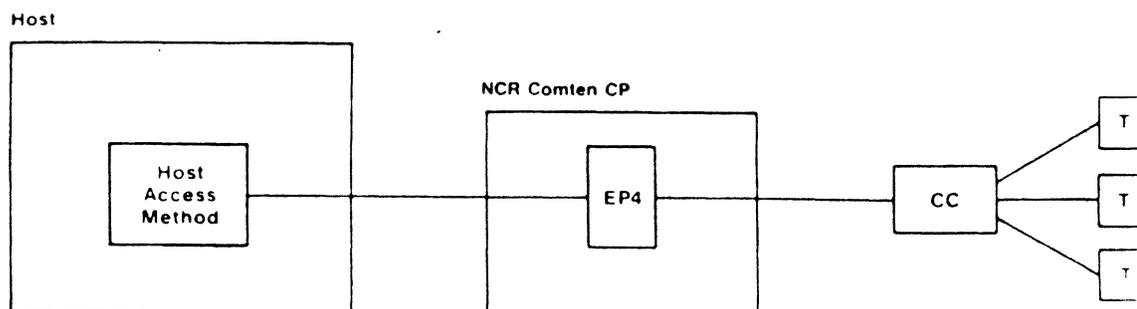
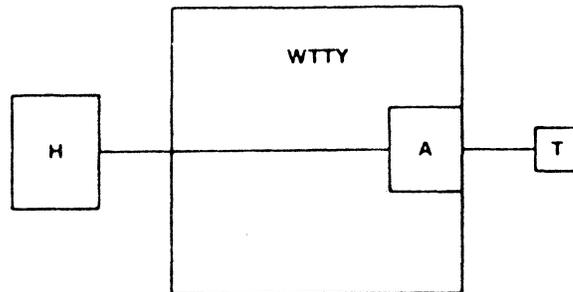


Figure 3-12: EP Configuration



NF003

Figure 3-13: Start/Stop Line Types

The emulators present in the node under analysis should be specified as W EMULATORS in the EP input section. There are four groups of emulators:

S/S Emulator: WTTY

This emulator handles communications with start/stop (asynchronous) terminals.

SS1 Emulator: SS1

SS1 can replace TA1, TA3, TA4, or F007 for high-speed lines. It requires either the Extended Start/Stop facility of the DLC-MIM or normal start/stop protocol with an A-MIM.

BSC Emulator: SDA2

This emulator handles bisynchronous (BSC) terminals and workstations. There may be one or more devices per terminal line. SDA2 has the ability to broadcast messages to the terminals, using the BCST utility.

MLA Emulators: MLA, MLAT

This emulator handles multi-leaving workstations using HASP protocol. Although it also uses BSC line protocol, it is treated separately for MEM purposes because the control block structure is different. MLA may be replaced by MLAT (MLATILS) for workstations using TILS.

Stub: SDS3

This module is used only in an RCP node, i.e., for terminals accessing a host at another node. It is used for SDA3 traffic.

EMULATION LINE TYPES

The following describes how to parameterize different types of lines under emulation control. The parameters are divided by emulator type. Every line or subline present in the node must be parameterized under exactly one of these types. Note that terminals accessing a host at a different node require both a line and a subline. (This does not apply to SS1.) If there are terminals for which this is an intermediate node, two sublines per terminal line are required.

If none of these parameters is used, the MEM program will default to one local BSC line under SDA2 control.

Start/Stop Lines

Figure 3-13 illustrates a configuration with Start/Stop line types. The following text explains the entries on the figure.

- A) SS Line - A terminal line directly controlled by a start/stop emulator. It accesses a host at the same node.

SS1 Line Types

Figures 3-14 and 3-15 illustrate configurations with SS1 line types. The following text explains the entries on both figures.

- A) SS1D Line - A local terminal line under SS1 control, using a DLC-MIM and a host at this node.
- B) SS1A
Dedicated
Line - A dedicated (non-TILS) local terminal line, using an A-MIM and a host at this node.
- C) SS1A TILS - A local SS1 TILS terminal line, using an A-MIM and a host at this node. An SS1A TILS line must be connected to an SS1 TILS pool dummy line in order to log on.
- D) SS1 TILS Pool
Dummy Line - A dummy line used to make TILS connections from local A-MIM lines or remote lines to a host at this node. The pool should contain one dummy line for each line using a TILS subchannel at this node. If there are fewer subchannels than lines, only one per subchannel is necessary.
- E) SS1 Subline - A subline used by a dedicated (non-TILS) remote SS1 device to access a host at this node. Each dedicated remote connection requires a subline in the host node. (A remote TILS connection requires an SS1 TILS pool dummy line instead of a subline.)

EP SECTION

- F) SS1D Line to Trunk - An SS1 D-MIM line at this node accessing a remote host via CNS. No subline is required in the terminal node. An SS1D line to trunk may be dedicated (permanently connected) or use TILS.
- G) SS1A Line to Trunk - An SS1 A-MIM at this node accessing a remote host via CNS. No subline is required in the terminal node. An SS1A line to trunk may be dedicated (permanently connected) or use TILS.

NOTE: If SS1 A-MIM or remote traffic is specified for SS1, an NSS input section must be included, specifying LCM as a Network Router application. Also, at least one NSS subline for each trunk used by SS1 must be specified. (Normally, one should be sufficient.)

BSC Lines

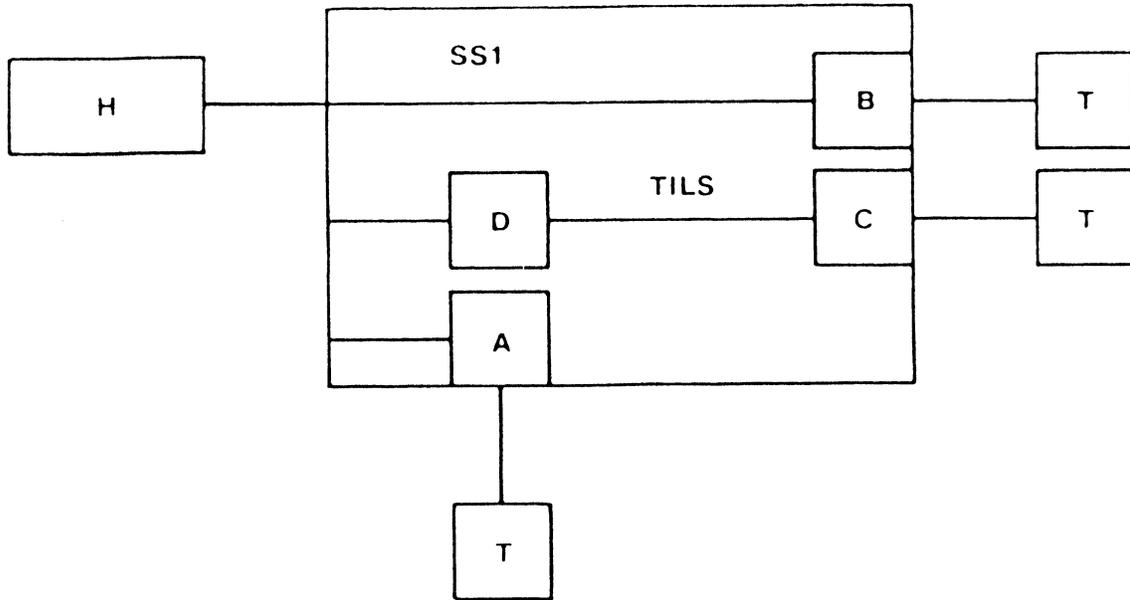
Figure 3-16 illustrates a configuration with BSC line types. The following text explains the entries on the figure.

- A) BSC Line - A terminal line directly controlled by a BSC emulator. It accesses a host at the same node.
- B) BSC Subline - A subline from a remote device, controlled by a BSC emulator. It accesses a host at this node.
- C) BSWX Line - A terminal line directly controlled by the CNS module BSWX, but accessing a remote host through a BSC emulator at another node.
- D) BSWX Subline - A subline used by a BSWX line, and under BSWX control. Each BSWX line requires a BSWX subline to get access to the CNS trunk. The subline may be assigned permanently, or dynamically by TILS.

MLA Lines

Figure 3-17 illustrates a configuration with MLA line types. The following text explains the entries on the figure.

- A) MLA Line - Terminal line to an MLA workstation at this node. It accesses a remote host.
- B) MLA Subline - A subline at either end of a remote MLA connection.



NF004

Figure 3-14: SS1 Local Line Types

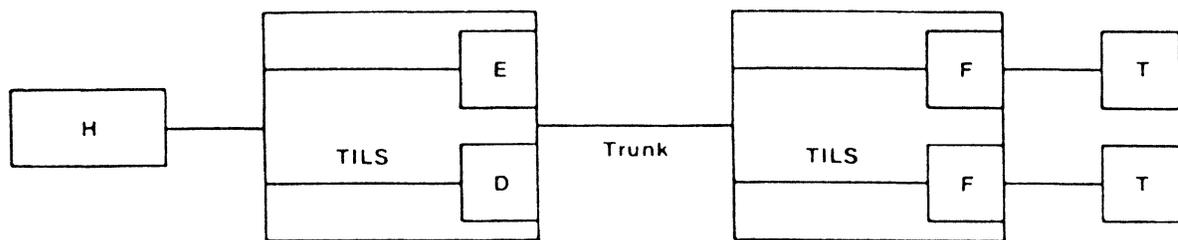


Figure 3-15: SS1 Remote Line Types

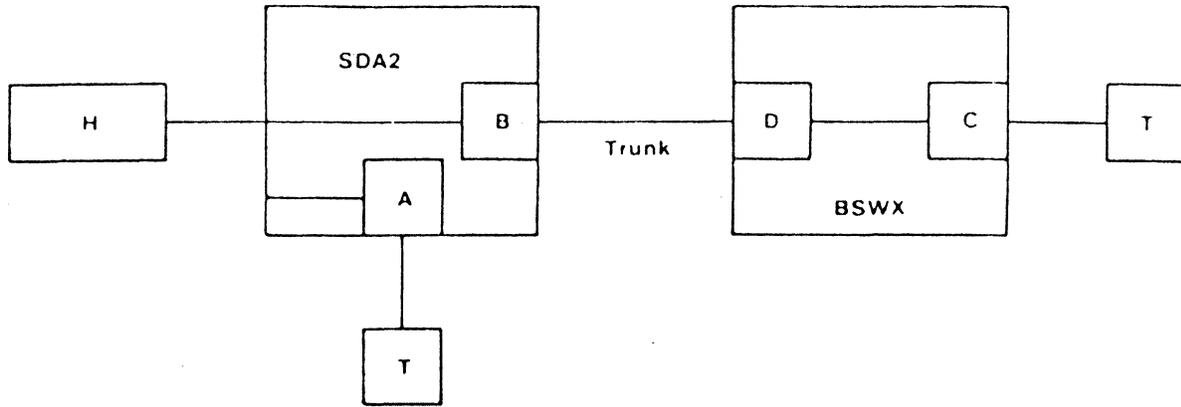
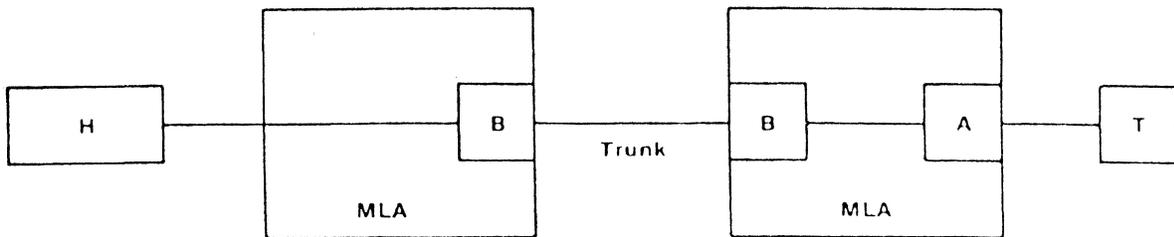


Figure 3-16: BSC Line Types



NI 007

Figure 3-17: MLA Line Types

SUBCHANNELS

Each line or subline that accesses a host at a given node requires a host subchannel at that node. The subchannel may be assigned permanently by the system generation, or else TILS, SILS, or MSLA may assign a subchannel dynamically from a pool of available subchannels. The number of subchannels defined at a given node is specified as N SUBCHANNELS. The number should include all permanently-assigned subchannels as well as TILS and SILS alternates.

The default value for this parameter assumes there is one subchannel for each line or subline that could require one.

MODULES, UTILITIES AND FEATURES

There is one choice for MODULES that applies to EP: Message Processing and Definition (MPAD). The MPAD module is used with TILS to send messages to terminals prompting for switch characters, or to report the result of an attempted logon.

There are three EP utilities. They are SWAP (to swap emulation lines), DRC, and BCST. The MEM program always includes SWAP and it need not be parameterized. BCST is a utility used to broadcast messages to BSC terminals under SDA2 control.

Multi-Subchannel Line Access (MSLA) is an emulation feature that permits two or more host subchannels to share a single terminal line. It will automatically switch the line from one subchannel to another if a host command is received, and the line is in an appropriate state. MSLA is present only in the node to which the host is attached.

The first line of the input file for this section is @EP. The parameters for EP may appear in any order.

EP SECTION

SOFTWARE PRODUCT = EP4

Required

This literal parameter specifies the version of EP software for this NCR Comten processor. The option that can be specified is:

EP4 - This specification indicates EP4 software.

There is no default value for this parameter.

RELEASE = 5E

Required

This literal parameter specifies the software product release for the version of EP for this NCR Comten processor. The option that can be specified is:

5E - This specification indicates Release 5E.

There is no default value for this parameter.

**EMULATORS = cccc
SDA2**

This multivalued literal parameter specifies the supported emulators for this NCR Comten processor. The options that can be specified are: WTTY, SS1, SDA2, MLA, and SDS3.

Specify the character strings for all supported emulators. A comma must follow each character string. The default value for this parameter is SDA2.

NOTE: The specification SDS3 represents an emulator stub which may be present only in the terminal node of a remote configuration.

UTILITIES = cccc,...,cccc

This multivalued literal parameter specifies the EP software utilities in this NCR Comten processor. The options that can be specified are:

BCST - This specification indicates the Emulation Broadcast Utility (BCASTU).

DRC - This specification indicates the SS1 utility to display remote configurations. It is useful for remote or A-MIM SS1.

Specify the character strings for each utility in this NCR Comten processor. A comma must follow each character string. The default value for this parameter is blank; if nothing is specified neither utility will be included.

MODULES = MPAD

This literal parameter specifies the emulation module for this NCR Comten processor. The option that can be specified is:

MPAD - This specification indicates the Initialization Message Processing and Definition module.

There is no default value for this parameter; if nothing is specified, no modules will be included.

N WTTY LINES = n
0

This integer parameter specifies the number of locally attached start/stop lines to the host, controlled by EP. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is 0.

N SS1D LINES = n
0

This integer specifies the number of locally attached SS1 lines to the host, using EXSS (DLC-MIM). Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is 0.

N SS1A DED LINES = n
0

This integer parameter specifies the number of locally attached SS1 dedicated (non-TILS) lines to the host, using an A-MIM. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default for this parameter is 0.

N SS1A TILS LINES = n
0

This integer parameter specifies the number of locally attached SS1 TILS lines to the host, using an A-MIM. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is 0.

EP SECTION

N SS1 TILS POOL = n

This integer parameter specifies the number of SS1 dummy lines or sublines available for TILS connections to the local host. Specify one dummy line per connection for all remote TILS lines and local A-MIM TILS lines. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is the value specified for the N SS1A TILS LINES parameter.

N SS1 SUBLINES = n
0

This integer parameter specifies the number of SS1 sublines. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). Specify one line per dedicated connection in the host node only. (Remote TILS connections require an SS1 TILS pool dummy line in the host node instead.) The default value is 0.

N SS1D LINES TO TRK = n
0

This integer parameter specifies the number of SS1 lines using a DLC-MIM to a remote host. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is 0.

N SS1A LINES TO TRK = n
0

This integer parameter specifies the number of SS1 lines using an A-MIM to a remote host. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is 0.

NOTE: If SS1 A-MIM or remote traffic is specified, an NSS input section must be included, specifying LCM as a Network Router application.

SS1 PACING = n₁,n₂
1,3

This two-valued integer parameter specifies the pacing parameters for SS1 traffic. The first value specifies the number of buffers that may be outstanding before a pacing response is requested. The second value specifies the number of buffers outstanding at which SS1 will stop transmission and wait for a pacing response before continuing. Specify two integers greater than 0, with the second value greater than or equal to the first ($0 < n_1 \leq n_2$). The default values for this parameter are 1,3.

N SDA2 LINES = n

This integer parameter specifies the number of locally attached SDA2 lines to a host. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). If EP lines are specified, the default value for this parameter is 0. If no other EP lines are specified, the default value is 1.

N SDA2 SUBLINES = n
0

This integer parameter specifies the number of CNS sublines under SDA2 control to a local host. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is 0.

N BSWX LINES = n
0

This integer parameter specifies the number of BSC lines under BSWX control to a remote host. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is 0.

N BSWX SUBLINES = n

This integer parameter specifies the number of sublines under BSWX control to a remote host. Each BSWX line must be connected to a BSWX subline in order to log on. It may be connected permanently or by TILS. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is the value specified for the N BSWX LINES parameter.

N MLA LINES = n
0

This integer parameter specifies the number of MLA lines to a remote host. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is 0.

N MLA SUBLINES = n

This integer parameter specifies the number of MLA sublines at the host or device end. Each MLA line must be connected to an MLA subline in the device node in order to operate. It may be connected permanently or by TILS. Specify an integer greater than or equal to 0 but less than or equal to 1024 ($0 \leq n \leq 1024$). The default value for this parameter is the value specified for the N MLA LINES parameter.

EP SECTION

MLA COUNT = n
3

This integer parameter specifies the MLA outstanding block count. Specify an integer greater than or equal to 1 but less than or equal to 15 ($1 \leq n \leq 15$). The default value for this parameter is 3.

NOTE: If a CNS satellite link is used, a value of at least 6 is recommended.

N SUBCHANNELS = n

This integer parameter specifies the number of emulation subchannels at this node. Include all TILS and SILS alternate subchannels. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is equal to the total number of lines and sublines attached to the local host.

N LINES USING MSLA = n
0

This integer parameter specifies the number of lines or sublines using the MSLA feature with a host at this node. These lines must also be specified under the appropriate line type. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N LINES USING BCST = n
0

This integer parameter specifies the number of lines or sublines using the SDA5 broadcast facility at this node. These lines must also be specified under the appropriate BSC line type. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

INPUT MSG LENGTH = n
30

This integer parameter specifies the average size of the input messages for EP traffic. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 30 bytes.

OUTPUT MSG LENGTH = n
300

This integer parameter specifies the average size of the output messages for EP traffic. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 300 bytes.

BLOCK LENGTH = n
400

This integer parameter specifies the average size of batch blocks for SDAX batch and MLA traffic. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 400 bytes.

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

MULTIPLE ACCESS FACILITY - MAF

This section describes the MEM parameters that determine the Multiple Access Facility (MAF) storage requirements. The MAF program product allows 3270-type devices to access host emulation-mode access methods. MAF uses ACF/NCP software to control locally attached lines and communicates with other MAF nodes via CNS software. If locally attached devices are parameterized, an NCP section should be included. Similarly, if remote MAF devices are parameterized, a CNS section should be included. Figure 3-18 illustrates the basic MAF configuration.

A device or application is defined as either local or remote from the perspective of the node being modeled. MAF devices on lines that directly attach to this NCR Comten processor are referred to as local devices. MAF terminals or printers that attach to a different Comten processor and connect through CNS are referred to as remote devices. For example, in Figure 3-19, when modeling 3690A, terminals T_a , T_b , T_c are considered remote terminals, but when modeling 3690B, the same terminals are considered to be local. Similarly, MAF applications in a channel-attached host are local, whereas applications in a MAF host that is channel-attached to a different Comten processor are remote. These terms are used in the parameter descriptions that follow.

The first line of the input file for this section is @MAF. The following parameters may appear in any order.

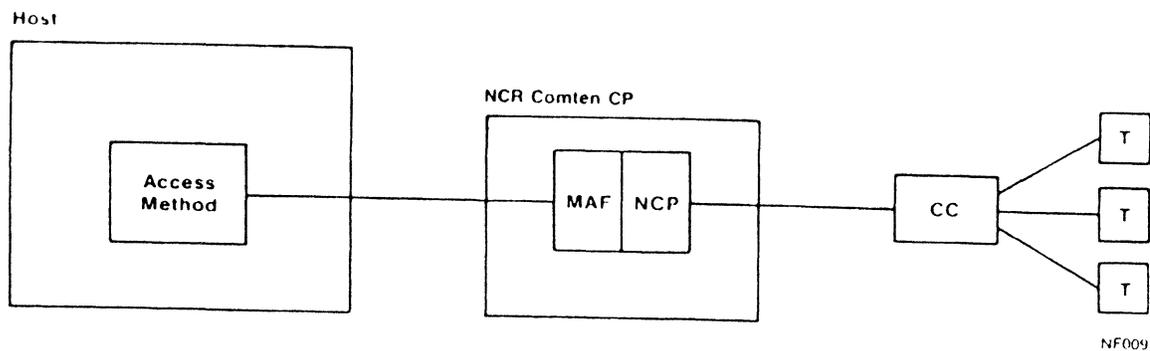


Figure 3-18: MAF Configuration

MAF SECTION

MAF3
SOFTWARE PRODUCT = MAF4
RHO

Required

This literal parameter specifies the version of MAF software for this NCR Comten processor. The options that can be specified are:

MAF3 - This specification indicates MAF3.

MAF4 - This specification indicates MAF4.

RHO - This specification indicates the Remote Host Option (MAF/RHO).

There is no default value for this parameter.

1
RELEASE = 1E
3E

Required

This literal parameter specifies the software product release for the version of MAF selected for this NCR Comten processor. The options that can be specified are:

1 - This specification indicates Release 3E. This release is only valid for MAF4.

1E - This specification indicates Release 1E. This release is only valid for RHO.

3E - This specification indicates Release 3E. This release is only valid for MAF3.

There is no default value for this parameter.

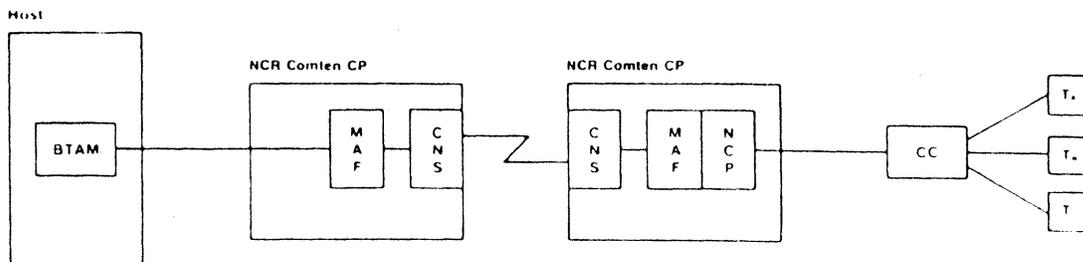


Figure 3-19: Remote MAF Configuration

UTILITIES = cccc, ..., cccc

This multivalued literal parameter indicates the inclusion of the specified MAF utilities in this NCR Comten processor. The options that can be specified are:

MAFB - This specification indicates the MAF Broadcast Facility Console Utility (MAFBC).

MAFU - This specification indicates the MAF Console Utility (MAFU).

Specify the character strings for all appropriate values. A comma must follow each character string. The default value for this parameter is blank, but if SOFTWARE = MAF, and UTILITIES = ALL are coded in the NODE section, these options will both be included.

N BSC LINES = n

This integer parameter specifies the number of BSC lines controlled by MAF that are directly attached to this NCR Comten processor. Specify a value greater than or equal to 0 but less than or equal to 512 ($0 \leq n \leq 512$). The default value for this parameter is 0. If the MAF section of the MEM input does not specify any MAF lines, then this parameter is set to 1.

N LOC BSC CLUSTERS = n

This integer parameter specifies the number of local BSC cluster controllers at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N BSC LINES parameter.

N LOC BSC TERM = n

This integer parameter specifies the number of local BSC terminals or polled printers at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N LOC BSC CLUSTERS parameter.

N REM BSC CLUSTERS = n
0

This integer parameter specifies the number of remote BSC cluster controllers that communicate with a local MAF application at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

MAF SECTION

N REM BSC TERM = n

This integer parameter specifies the number of remote BSC terminals or polled printers that communicate with a local MAF application at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N REM BSC CLUSTERS parameter.

N SNA LINES = n
0

This integer parameter specifies the number of SNA lines controlled by MAF that are directly attached to this NCR Comten processor. Specify a value greater than or equal to 0 but less than or equal to 512 ($0 \leq n \leq 512$). The default value for this parameter is 0.

N LOC SNA PU = n

This integer parameter specifies the number of local SNA physical units at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SNA LINES parameter.

N LOC SNA LU = n

This integer parameter specifies the number of local SNA logical units at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N LOC SNA PU parameter.

N REM SNA PU = n
0

This integer parameter specifies the number of remote SNA physical units that communicate with a local MAF application at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N REM SNA LU = n

This integer parameter specifies the number of remote SNA logical units that communicate with a local MAF application at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N REM SNA PU parameter.

N REM NODES = n
0

This integer parameter specifies the number of remote NCR Comten processors that transmit to or receive MAF traffic from this Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SUBLINES = n

This integer parameter specifies the number of CNS sublines defined for MAF traffic to and from remote nodes. MAF requires one subline for each remote destination to which it can send data. If this parameter is used, a CNS input section should be included. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is equal to the value specified for N REM NODES.

N SUBCHANNELS = n
1

This integer parameter specifies the total number of MAF subchannels at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1.

NOTE: When parameterizing an NCR Comten processor with no local MAF applications, this parameter should not be allowed to default. A value of 0 should be specified.

N RHO SUBCHANNELS = n
1

This integer parameter specifies the total number of RHO pseudo subchannels at this NCR Comten processor. Normally, there is one pseudo subchannel to each host attached via a communications line. This parameter is only valid for MAF/RHO R1E. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1.

MAX TRAN = n
4000

This integer parameter specifies the maximum number of data characters that MAF software will accept from the host on a single WRITE command. Specify an integer greater than or equal to 1000 ($n \geq 1000$). The default value for this parameter is 4000.

MAF SECTION

N APPLICATIONS = n
1

This integer parameter specifies the total number of MAF applications in this network. Note that this includes all local MAF applications and any remote MAF applications that are accessed by terminals attached at this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1.

AVG SUB PER CU = n

This integer parameter specifies the average number of MAF subchannels which are accessed per MAF control unit. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is equal to two times the value specified for the N APPLICATIONS parameter.

MULTIPLE SESSION MANAGER - MSM

This section describes the MEM parameters that determine MSM storage requirements. MSM runs as a CAM application using the CAM Virtual Resource (CVR) interface on a per session basis. Users may access local applications through Host Interfaces (HIFs) and remote applications using MSM's internodal capabilities in conjunction with CNS and NSS. MSM supports multiple application sessions per terminal.

Each virtual device (terminal or printer) in MSM requires a virtual resource to be specified in the @CAM section. Internodal sessions require @CNS and @NSS sections.

The first line of the input file for this section is @MSM. The parameters may appear in any order. The keywords that will account for most of the storage are N VIRTUAL DEVICES, N TERMINALS, N USERS, N REMOTE SESSIONS, N MSNF TERMINALS, and N SAVED SCREENS because these are on a per session basis.

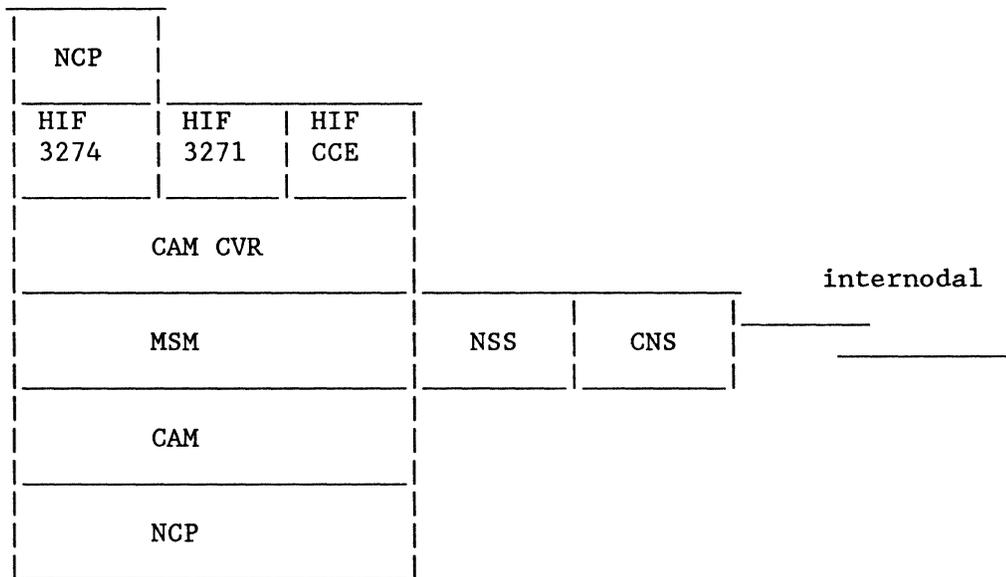


Figure 3-20: MSM Internodal Configuration

Comten MSM node

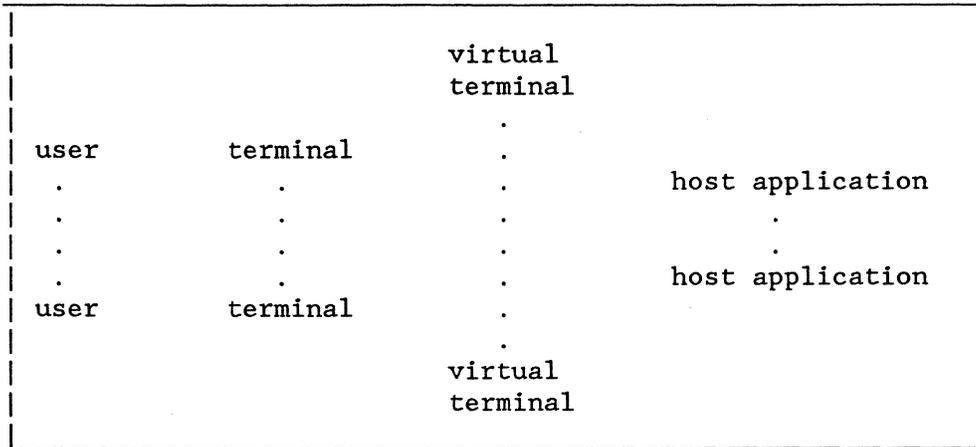


Figure 3-21: MSM Resources Needed for a Session with a Local Application

Comten MSM node 1

Comten MSM node 2

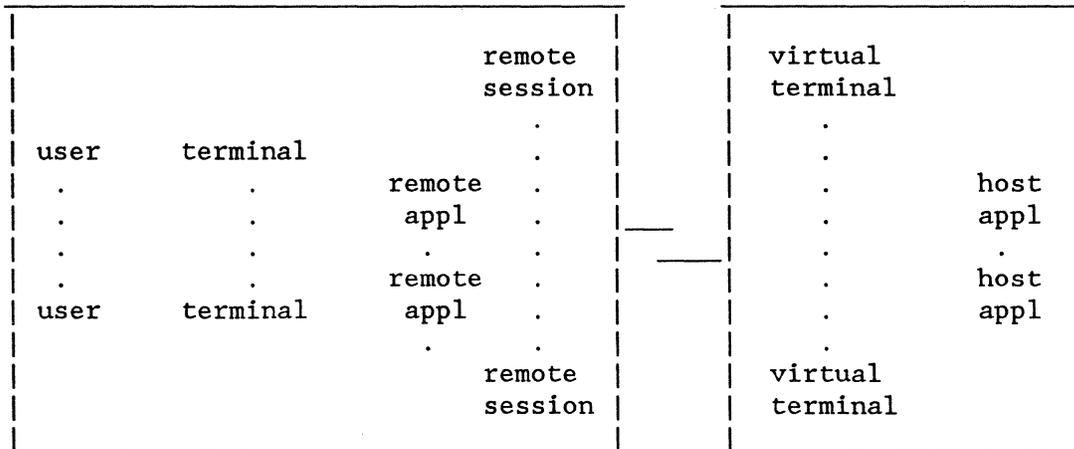


Figure 3-22: MSM Resources Needed for a Session with a Remote Application

MSM Resources

- Host Application - An MSM entry point in the Comten processor to a host resident application.
- Virtual Terminal - The logical device with which the Host Application is in session.
- Terminal - The CAM-controlled device.
- User - An ID with explicit permission to access this MSM network or one of a pool of generic users.
- Remote Application - An MSM entry point in the Comten processor to a Host Application in another MSM Comten processor.
- Remote Session - Establishes an internodal connection with a Virtual Terminal in another MSM Comten processor.

MSM SECTION

Examples of MSM session parameters

- 1) Terminal with access to a host application through 3271.

@NCP

N SNA LU = 1

@CAM

SUBSYSTEMS = DMFNIF, HIF 3271

N SNA LU = 1

* terminal owned by CAM

N HIF 3271 VIRTUAL RES = 1

@MSM

N HOST APPLICATIONS = 1

N VIRTUAL DEVICES = 1

N TERMINALS = 1

N USERS = 1

- 2) Terminal with access to 2 host applications through 3271 and 3274.

@NCP

N SNA LINE = 2* 1 for 3274 virtual group

N SNA PU = 2 * 1 for 3274 virtual group

N SNA LU = 2 * 1 locally attached + 1 for 3274 resource

@CAM

SUBSYSTEMS = HIF3271, HIF 3274

N HIF 3271 VIRTUAL RES = 1

N HIF 3274 VIRTUAL RES = 1

N SNA LU = 1 * CAM owned, locally attached

@MSM

N HOST APPLICATIONS = 2

N VIRTUAL DEVICES = 2

N TERMINALS = 1

N USERS = 1

3) Terminal with access to a remote application.

@NCP

N SNA LU = 1 * locally attached

@CAM

N SNA LU = 1 * CAM owned, locally attached

@MSM

N REMOTE APPLICATIONS = 1

N REMOTE SESSIONS = 1

N TERMINALS = 1

N USERS = 1

@CNS

N TRUNKS = 1

@NSS

N SUBLINES = 1

4) Two terminals with access to 3 remote applications with 5 total remote sessions for the terminals.

@NCP

N SNA LU = 2 * locally attached

@CAM

N SNA LU = 2 * CAM owned, locally attached

@MSM

N REMOTE APPLICATIONS = 3

N REMOTE SESSIONS = 5

N TERMINALS = 2

N USERS = 2

@CNS

N TRUNKS = 1

@NSS

N SUBLINES = 1

MSM SECTION

- 5) The node with the remote application(s): the other half of the internodal session.

@CAM

SUBSYSTEMS = HIF 3271

N HIF 3271 VIRTUAL RES = 1 * any HIF

@MSM

N HOST APPLICATIONS = 1 * or more

N VIRTUAL DEVICES = 1 * or more

* terminals and users are specified in the terminal attached node

- 6) A cross-domain resource using MSNF to access this node, and establish a HIF3274 session.

@CAM

N CAM EXTERNAL CDRM = 1

N EXTERNAL CDRSC = 1

N HIF3274 VIRTUAL RES = 1 * for session with host

@MSM

N HOST APPLICATIONS = 1 * or more

N VIRTUAL DEVICES = 1 * or more

N USERS = 1

N MSNF TERMINALS = 1 * instead of N TERMINALS for these

SOFTWARE PRODUCT = MSM

This literal parameter specifies the version of the MSM software for this NCR Comten processor. The option that can be specified is:

MSM - This specification indicates MSM.

There is no default value for this parameter.

RELEASE = 1

This literal parameter specifies the software product release for the version of MSM selected for this NCR Comten processor. The option that can be specified is:

1 - This specification indicates Release 1. This is valid for MSM.

There is no default value for this parameter.

FEATURES = cccc

This literal parameter indicates the inclusion of specified MSM software features. These features are selected by the system user through the system generation. The option that may be specified is:

RDBFR - This specification indicates that the screens of suspended sessions will be saved. In the MSM gen, this is specified by the HOSTAPPL macro FRESH=RDBFR keyword. See the N SAVED SCREENS parameter.

N HOST APPLICATIONS = n
1

This integer parameter specifies the number of local host applications. In the MSM gen, this corresponds to the number of HOSTAPPL macros. The default is 1.

N REMOTE SITES = n
0

This integer parameter specifies the number of other MSM sites with access to each local application at this MSM node. A remote site is counted for as many local applications as it has access to. In the MSM gen, this corresponds to the number of entries for the HOSTAPPL macros RSITE= keywords. The default is 0.

MSM SECTION

N REMOTE APPLICATIONS = n

This integer parameter specifies the number of remote host applications which users in this system have access to. In the MSM gen, this corresponds to the number of RMTAPPL macros. The default is 0, unless N REMOTE SESSIONS is specified in which case the default is 1.

N REMOTE SESSIONS = n

This integer parameter specifies the number of concurrent sessions from local terminals to remote applications via MSM internodal capabilities. In the MSM gen, this corresponds to the sum of the values specified for the RMTAPPL macros RMTCNT= keywords. The default is N REMOTE APPLICATIONS.

N VIRTUAL DEVICES = n

This integer parameter specifies the number of local host application sessions. In the MSM gen, this corresponds to the total number of VRTERM and VPRTR macros. The default is N HOST APPLICATIONS.

N TERMINALS = n
1

This integer parameter specifies the number of local terminals that may be concurrently in session with MSM. In the MSM gen, this corresponds to the number of MTERM macros. The default is 1.

N PRINTERS = n
0

This integer parameter specifies the number of local printers that may be concurrently in session with MSM. In the MSM gen, this corresponds to the number of PRINTER macros. The default is 0.

N USERS = n

This integer parameter specifies the number of user IDs that can access this MSM node. In the MSM gen, this corresponds to either the number of USER macros and the value specified for the MVNF2GEN keyword SPARUSR= if USERSEC=YES is coded on the MVNF2GEN macro or the value specified for the GNRUSER macro COUNT= keyword. The default is N TERMINALS + N MSNF TERMINALS.

N MSNF TERMINALS = n
0

This integer parameter specifies the number of cross-domain terminals that may access this MSM node through the Multi-System Networking Facility (MSNF). A corresponding number of cross domain resources should be specified in the @CAM section. In the MSM gen, this corresponds to the value specified for the MSNFTERM macro MSNFCNT= keyword. The default is 0.

N SAVED SCREENS = n

This integer parameter specifies the number of suspended application sessions in which MSM is storing the contents of the screen. A screen will be saved provided the option was specified in the gen and another application has been quick-switched to or the menu mode has been entered. MEM uses a screen size of 1920 bytes. If FEATURES=RDBFR then the default is

$$\frac{(N \text{ HOST APPLICATIONS} + N \text{ REMOTE APPLICATIONS})}{4} * (N \text{ VIRTUAL DEVICES} - N \text{ TERMINALS} - N \text{ PRINTERS});$$

otherwise, the default is zero. See FEATURES=RDBFR.

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

NETWORK SUPPORT SERVICES - NSS

This section describes the MEM parameters that determine the Network Support Services (NSS) storage requirements. The NSS program product provides enhanced load and dump capabilities. These include Remote Initial Load (RIL) through intermediate nodes and Remote Dump (RDMP) for centralized control of large networks. Figure 3-23 illustrates a basic NSS configuration.

The first line of the input file for this section is @NSS. The following parameters may appear in any order.

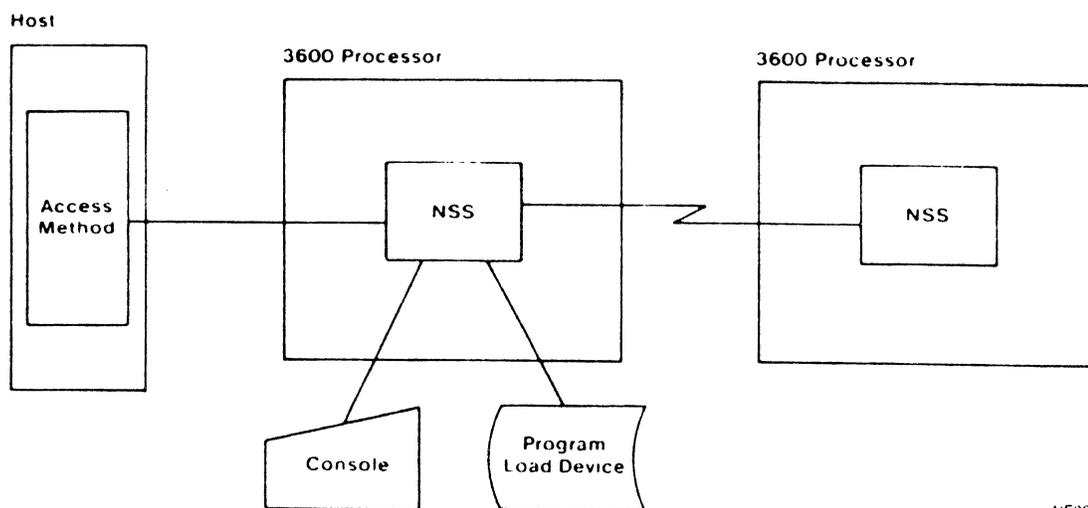


Figure 3-23: NSS Configuration

NSS SECTION

**SOFTWARE PRODUCT = NSS1
NSS2**

Required

This literal parameter specifies the version of NSS software for this NCR Comten processor. The options that can be specified are:

NSS1 - This specification indicates NSS1.

NSS2 - This specification indicates NSS2.

There is no default value for this parameter.

**1
RELEASE = 2E
3E**

Required

This literal parameter specifies the software product release for the version of NSS selected for this NCR Comten processor. The options that can be specified are:

1 - This specification indicates Release 1. This is valid only for NSS2.

2E - This specification indicates Release 2E. This is valid only for NSS1.

3E - This specification indicates Release 3E. This is valid only for NSS1.

There is no default value for this parameter.

NETRTR APPLS = cccc, ..., cccc

This multivalued literal parameter indicates the inclusion of specified network router applications in this NCR Comten processor. The options that can be specified are:

CAF - This specification indicates the Communications Alerting Facility. This specification allows CAF to use the network router for multinode communications.

CONS - This specification indicates the CONSOLE application. It is necessary for reading/writing Program Load Device (PLD) files and for console-to-console communications.

DUMP - This specification indicates the DUMP application. It is needed to perform online dumps of a processor.

- ILD - This specification indicates the Initial Load Device application. It is needed to transmit data between the program load device and the host.
- LCM - This specification indicates the Logical Circuit Manager. LCM is an EP/SS1 module. This specification is required for SS1 to use the network router for remote communications.
- NCR - This specification indicates the NCR application. The NCR application is used for a BSL-attached CP to support the interface between the CP-based network router and the host-based NSS utility.
- NLF - This specification indicates the Network Link Facility. It supports the transfer of NCR Comten files between a customer network and an NCR Comten support site.
- RIL - This specification indicates the Remote Initial Load application. It is needed to load link-attached processors over CNS trunk lines.

Specify the character strings for all appropriate values. A comma must follow each character string. There is no default value for this parameter; if nothing is specified, no applications will be included.

N UTIL SUBCHANNELS = n
0

This integer parameter indicates the number of utility subchannels included in this NCR Comten processor. Normally, there is one per channel-attached host. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SUBLINES = n
0

This integer parameter specifies the number of CNS sublines defined for use by the NSS module network router to communicate with remote nodes. The network router requires at least one subline for each trunk over which it can send data. (Normally, one is sufficient.) The network router is used to perform remote communications for Remote Initial Load (RIL), the emulation module Start/Stop 1 (SS1), and the Communications Alerting Facility (CAF). These network router users can share a single subline for a given CNS trunk. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

NETWORK TERMINAL OPTION - NTO

This section describes the MEM parameters that determine Network Terminal Option (NTO) storage requirements. The NTO program product allows pre-SNA S/S devices to appear to the host access method as SNA devices. Data inbound from the pre-SNA device is converted to SNA 3767 protocol format for delivery to the host. Outbound data from the host is then converted from SNA 3767 protocol to the appropriate pre-SNA protocol for delivery to the device. Figure 3-24 illustrates a basic NTO configuration.

NTO is required in the NCR Comten processor to which the device is locally attached. If some pre-SNA devices are attached to the FEP and others are attached to the RCP in a multi-processor network, then NTO must be present in both processors. Lines and terminals parameterized in the NTO section must also be included as S/S lines and terminals in the NCP section.

The first line of the input file for this section is @NTO. The following parameters may appear in any order.

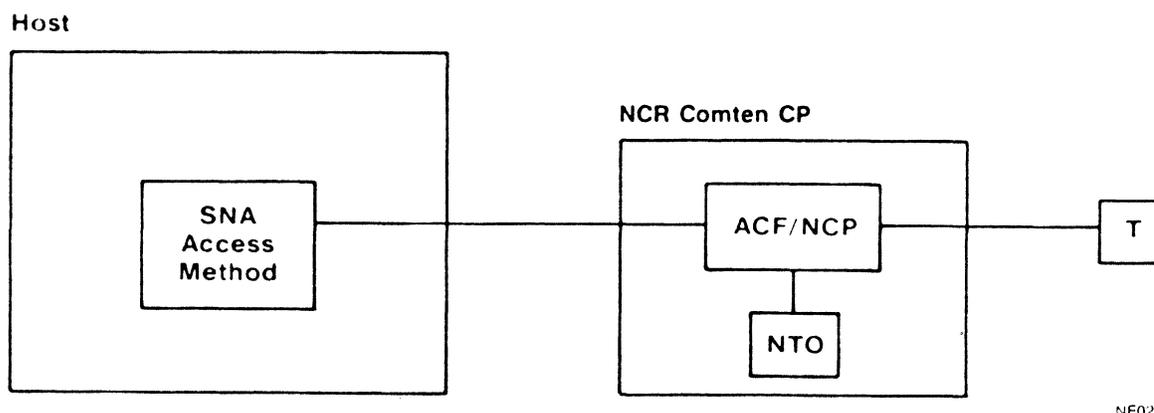


Figure 3-24: NTO Configuration

NTO SECTION

**SOFTWARE PRODUCT = NT02
NT03**

Required

This literal parameter specifies the version of the NTO software for this NCR Comten processor. The option that can be specified is:

NT02 - This specification indicates NT02.

NT03 - This specification indicates NT03.

There is no default value for this parameter.

**RELEASE = 1E
2E**

Required

This literal parameter specifies the software product release for the version of NTO selected for this NCR Comten processor. The options that can be specified are:

1E - This specification indicates Release 1E. This is valid for NT02 and NT03.

2E - This specification indicates Release 2E. This is valid for NT02 only.

There is no default value for this parameter.

**N SS LINES = n
1**

This integer parameter specifies the number of S/S lines controlled by NTO that are directly attached to this NCR Comten processor. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1.

N SS TERM = n

This integer parameter specifies the number of S/S terminals controlled by NTO that are on lines directly attached to this NCR Comten processor. Normally, there is one terminal per line. Specify a value greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SS LINES parameter.

STATISTICS AND EXTENDED ACCESS CONTROL - SEAC

The Statistics and Extended Access Control (SEAC) program product performs two monitoring functions for emulation terminal lines. It controls access to specified application programs using TILS switching, and it monitors both TILS and non-TILS lines to collect statistics on session length, amount of data transferred, etc. These functions may be specified for each line individually. Figure 3-25 illustrates a configuration with SEAC.

SEAC functions only in the node to which the host is directly attached. It need not be present in a node which handles only remote traffic to hosts at other nodes.

The first line of the input file for this section is @SEAC. The following parameters may appear in any order.

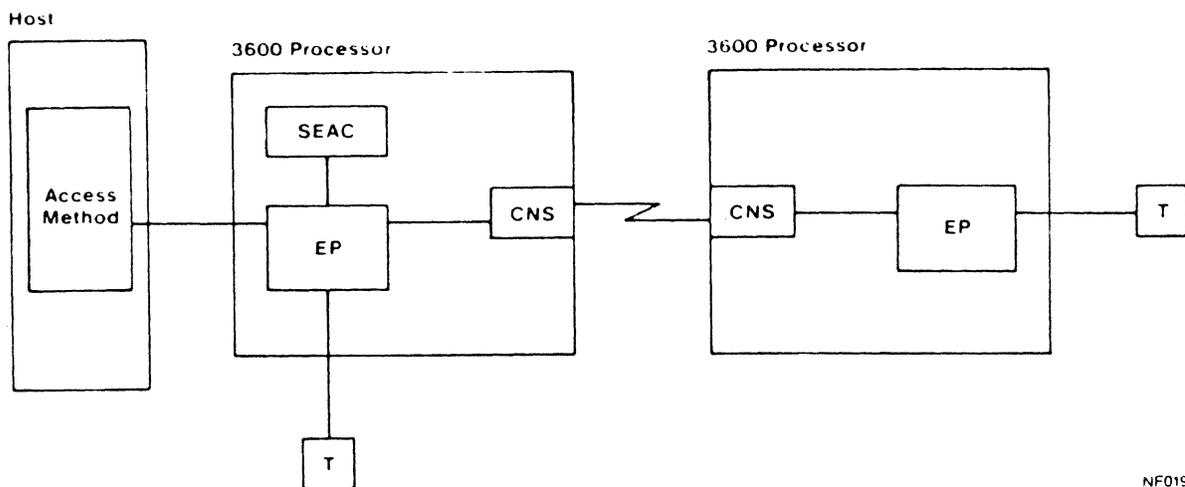


Figure 3-25: SEAC Configuration

SEAC SECTION

SOFTWARE PRODUCT = SEA3

Required

This literal parameter specifies the version of SEAC software for this NCR Comten processor. The option that can be specified is:

SEA3 - This specification indicates SEAC3 software.

There is no default value for this parameter.

RELEASE = 1E

Required

This literal parameter specifies the software product release of SEAC software for this NCR Comten processor. The option that can be specified is:

1E - This specification indicates Release 1E.

There is no default for this parameter.

N LINES = n
1

This integer parameter specifies the number of lines or remote lines using SEAC while accessing a host at this node. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1.

N RECORD SUBLINES = n
0

This integer parameter specifies the number of CNS sublines defined for SEAC use in transmitting its statistical records between NCR Comten processors. These records may be destined for a host at this node or a remote host. If this parameter is used, a CNS input section should be included. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N LINES USING ST = n

This integer parameter specifies the number of SEAC lines or remote lines using the statistics function. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N LINES parameter.

SUBAREA ROUTING MANAGER - SRM

This section describes the MEM parameters that determine Subarea Routing Manager (SRM) storage requirements. The SRM program product allows 3270 terminals to selectively log on to any of several access methods in a network. The access methods may be either directly attached to this NCR Comten processor or attached to a remote processor. SRM can also switch to MAF or CAM since they are treated by SRM in the same manner as NCP access methods. Figure 3-26 illustrates a basic SRM configuration.

SRM offers switching support for BSC or SNA 3270 terminals operating in accept-mode and direct-connect support for any ACF/NCP compatible terminal. A direct-connect terminal is one with access to a single access method. When specifying values for the parameters which describe resources (lines, terminals, etc.) be sure to count direct-connect devices as well as switchable devices. For example, BSC 3270 printers should be included in the value specified for N BSC TERM, even though printers can not use SRM switching. The values specified for numbers of resources in the SRM section normally are the same as the values specified in the NCP section.

Special attention should be given to determining the SRM mapping factor. This parameter represents the average number of access methods to which a terminal can log on. This is also the ratio of logical devices (as seen by the access methods) to physical devices controlled by NCP.

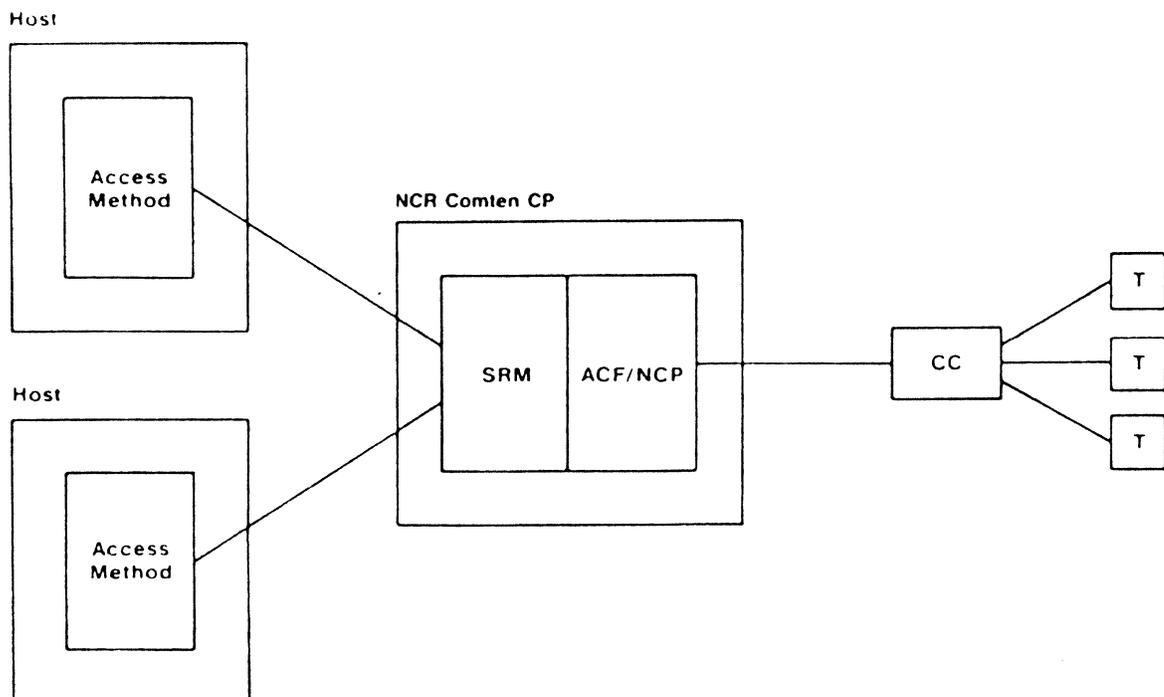


Figure 3-26: SRM Configuration

SRM SECTION

The number of physical devices is simply the total number of direct-connect or switched terminals driven by NCP. Add the values specified for N BSC TERM and N SNA LU parameters. The number of logical devices is the sum of all devices as seen by all access methods. A direct-connect terminal should be counted once, a terminal that can switch to two access methods should be counted twice, and so on.

For example, consider a system with ten physical terminals and two access methods, VTAM A and VTAM B. (Refer to Figure 3-27.) Two terminals access only VTAM A, three access only VTAM B, and five can switch between both VTAMs. VTAM A sees seven terminals (two direct-connect and five switching) and VTAM B sees eight terminals (three direct-connect and the same five switching). The total number of logical devices is 15. Therefore, the mapping factor is 15/10 or 1.5. In other words, an average terminal can switch to 1.5 access methods.

The mapping factor applies only to terminals and SNA logical units. For simplicity, MEM assumes that all lines, BSC cluster controllers, and SNA physical units are defined to all access methods.

The first line of the input file for this section is @SRM. The following parameters may appear in any order.

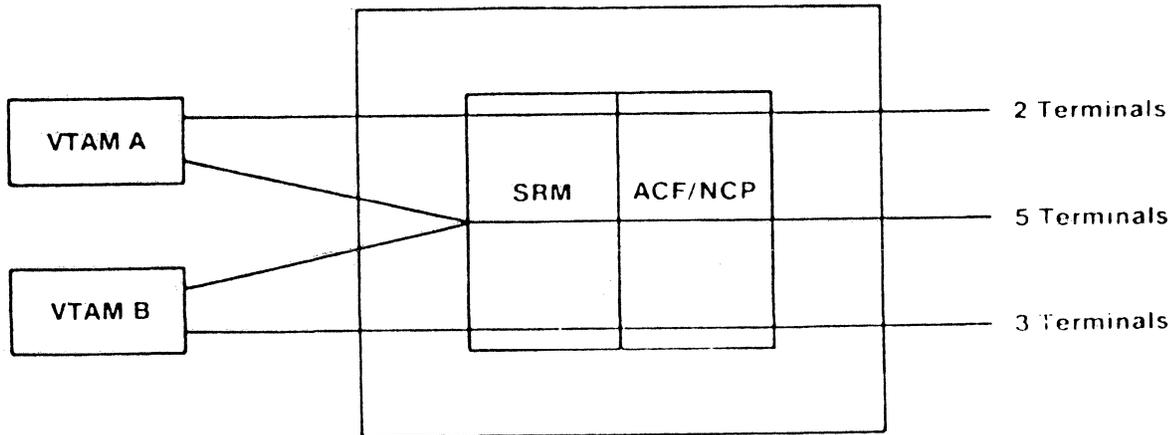


Figure 3-27: SRM Mapping Factor

SOFTWARE PRODUCT = SRM1Required

This literal parameter specifies the version of SRM software for this NCR Comten processor. The option that can be specified is:

SRM1 - This specification indicates SRM1 software.

There is no default value for this parameter.

**RELEASE = 4E
5E**Required

This literal parameter specifies the software product release of SRM for this NCR Comten processor. The option that can be specified is:

4E - This specification indicates Release 4E.

5E - This specification indicates Release 5E.

There is no default value for this parameter.

**N ACCESS METHODS = n
2**

This integer parameter specifies the number of access methods defined to SRM, including any VTAM, MAF, or CAM. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 2.

**MAPPING FACTOR = x.x
1.5**

This real parameter specifies the average number of access methods that a terminal can access via SRM. Specify a real number greater than or equal to 1 ($x.x \geq 1$). The default value for this parameter is 1.5.

N BSC LINES = n

This integer parameter specifies the number of BSC lines using SRM. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0. If no other SRM lines are specified, the default value is 1.

SRM SECTION

N SNA LINES = n
0

This integer parameter specifies the number of SNA lines using SRM. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N BSC CLUSTERS = n

This integer parameter specifies the number of BSC cluster controllers using SRM. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N BSC LINES parameter.

N SNA PU = n

This integer parameter specifies the number of SNA physical units using SRM. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SNA LINES parameter.

N BSC TERM = n

This integer parameter specifies the number of BSC terminals using SRM. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N BSC CLUSTERS parameter.

N SNA LU = n

This integer parameter specifies the number of SNA logical units using SRM. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is the value specified for the N SNA PU parameter.

N BSC PRINTERS = n
0

This integer parameter specifies the number of BSC printers using SRM. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SNA PRINTERS = n
0

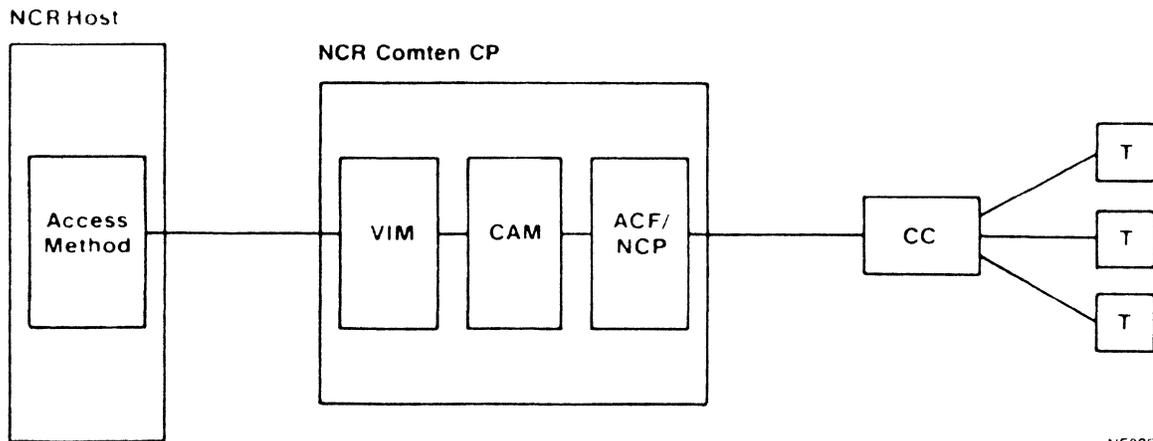
This integer parameter specifies the number of SNA printers using SRM. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

VRX INTERFACE MODULE - VIM

This section describes the parameters for the VRX Interface Module (VIM) portion of a MEM input file. Figure 3-28 illustrates a basic configuration with VIM. Currently, VIM R1E and CAM3 R2E make up the VRX front end software system. The MEM input file should include a CAM section and an NCP section.

VIM R2E, CAM3 R3E and ACF/NCP V4.0 or higher make up the ACS R2 portion of the NCR/CP product set. ACS R2 allows an NCR Comten 3695/56X0 communications processor to physically and logically attach to an NCR V-series 8XXX or 9800 host via the NCR Bit Serial Link.

The first line of the input file for this section is @VIM. The following parameters may appear in any order.



NF025

Figure 3-28: VIM Configuration

VIM SECTION

NCR CP Product

The NCR CP product set consists of two major features that may reside together or independently: DCU and ACS. DCU connects NCR hosts to NCR devices. ACS is parameterized in the @VIM section. DCU requires COS2 R4 and NSS2 R1. ACS requires COS R4, VIM R2, CAM3 R3E and NSS2 R1.

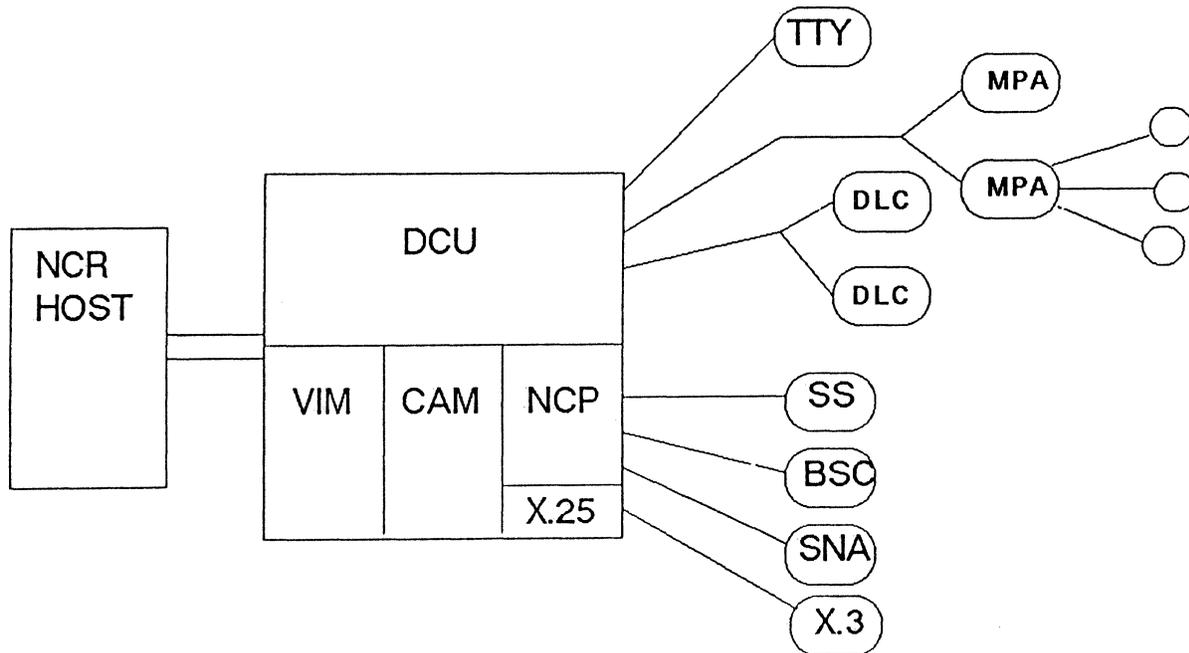


Figure 3-29: NCR CP 1.0 Configuration

SOFTWARE PRODUCT = VIM1Required

This literal parameter specifies the version of VIM software for this NCR Comten processor. The option that can be specified is:

VIM1 - This specification indicates VIM.

There is no default value for this parameter.

**RELEASE = 1E
2**Required

This literal parameter specifies the software product release for the version of VIM for this NCR Comten processor. The option that can be specified is:

1E - This specification indicates Release 1E.

2 - This specification indicates Release 2.

There is no default value for this parameter.

**N TERMINALS = n
0**

This integer parameter specifies the number of terminal devices that access a VRX host application. This includes locally connected terminals and remote terminals connecting to this node via ACF trunks. This parameter is the sum of all the terminals in the CAM network for VIM. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

NOTE: This keyword is valid for VIM1 R1E only. For VIM1 R2 use the two following keywords: **N ACCEPT TERMINALS** and **N ACQUIRE TERMINALS**.

N ACCEPT TERMINALS = n
0

This integer parameter specifies the number of terminals defined as CAM accept-mode in the NCR Comten system generation for the CP. An accept-mode terminal can establish connection with any VRX application in the attached host by entering a system defined logon sequence specific to the application. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

NOTE: This keyword is valid for VIM1 R2 only. For VIM1 R1E use the **N TERMINALS** keyword.

N ACQUIRE TERMINALS = n
0

This integer parameter specifies the number of terminals defined as CAM acquire-mode in the NCR Comten system generation for the CP. The host application establishes the connection with an acquire-mode terminal. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

NOTE: This keyword is valid for VIM1 R2 only. For VIM1 R1E use the **N TERMINALS** keyword.

N NCR APPLS = n

This integer parameter specifies the number of VRX host applications. The two releases of VIM1 are handled as follows:

VIM1 R1E: It is assumed that the following applications providing VRX Comten Support (VCS) are present: **LOADER, DUMPER, TRACER, AND OPRINT.** Specify an integer greater than or equal to 0 ($n \geq 0$). the default value for this VIM1 R1E parameter is 5, assuming one application in addition to the above four utilities.

VIM1 R2 : No applications are assumed to exist. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

INTERFACE TO PUBLIC DATA NETWORKS - X.25

The Interface to Public Data Networks (X.25) program product allows communication with an X.25 packet-switched network through a front-end processor. The X.25 product can be used with a variety of public and private data networks, specified to MEM by the ADMINISTRATIONS parameter. The NCR Comten processor is connected to an X.25 network by at least one physical communications link. A DLC-MIM is needed to support this link and must be included in the NODE section of the MEM input file. There must be at least one link per administration. Figure 3-30 illustrates a basic X.25 configuration.

The X.25 program product consists of a basic X.25 link interface, referred to here as the X.25 I/F, and a variety of packet adapters which transmit X.25 traffic to an IBM host. Figure 3-31 shows the structure of X.25 modules.

Two emulation-type packet adapters, PA1 (for S/S terminals) and PA4A (for BSC terminals) permit the X.25 program product to communicate with IBM hosts using BTAM. PA4A supports only one cluster controller per terminal line.

In addition to the emulation-type packet adapters, there are five packet adapters which permit the X.25 program product to communicate with IBM hosts using VTAM. These packet adapters connect the X.25 interface modules with NCP. The five packet adapters are PA2 (for S/S terminals), PA5A, PA5D, and PA5DSP (for BSC terminals), and PA3 (for SNA terminals). PA5A allows only one cluster per terminal line, while PA5D and PA5DSP can support multidropped cluster controllers on a single line.

If any of these NCP-type packet adapters is used, an NCP section must be included in the MEM input file. If X.25 traffic passes through NCP to MAF, a MAF input section must also be included.

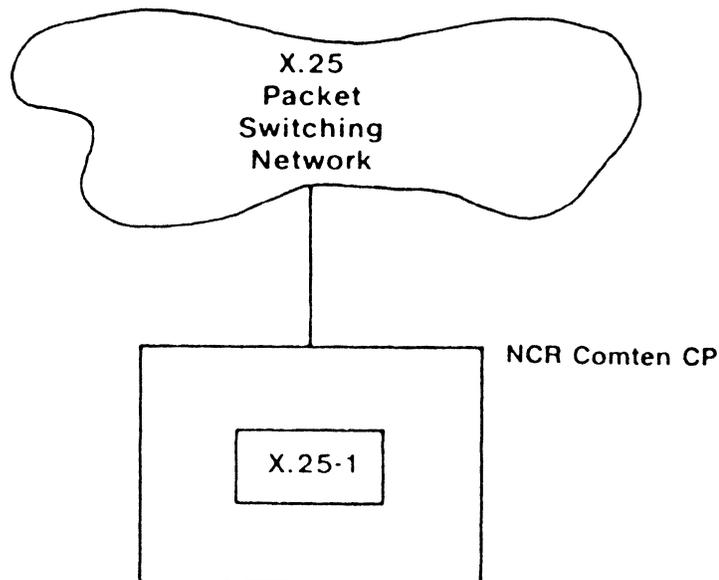


Figure 3-30: X.25 Configuration

VIRTUAL CIRCUITS

To connect an X.25 terminal to a host, the packet adapter establishes a logical connection called a virtual circuit. A virtual circuit may carry traffic for one or more terminals on a physical terminal line, depending on the packet adapter. The number of virtual circuits defined for each packet adapter is specified in the MEM input file by a parameter of the form N xxxx VC.

NOTE: Any virtual circuits specified for an NCP-type packet adapter must also be included in the NCP section under the appropriate line type, and the cluster controllers and terminals on those virtual circuits must also be parameterized in the NCP section.

Virtual circuits are either permanent, with a fixed connection to a given host resource, or switched. The total number of permanent virtual circuits for all packet adapters is specified by the MEM parameter N PERM VC. Switched virtual circuits use a pool of available control blocks to connect to host resources. If the pool does not contain as many control blocks as there are switched virtual circuits, then only that number of switched virtual circuits can be simultaneously in session. The size of the control block pool is specified by the MEM parameter N ACT SWX VC.

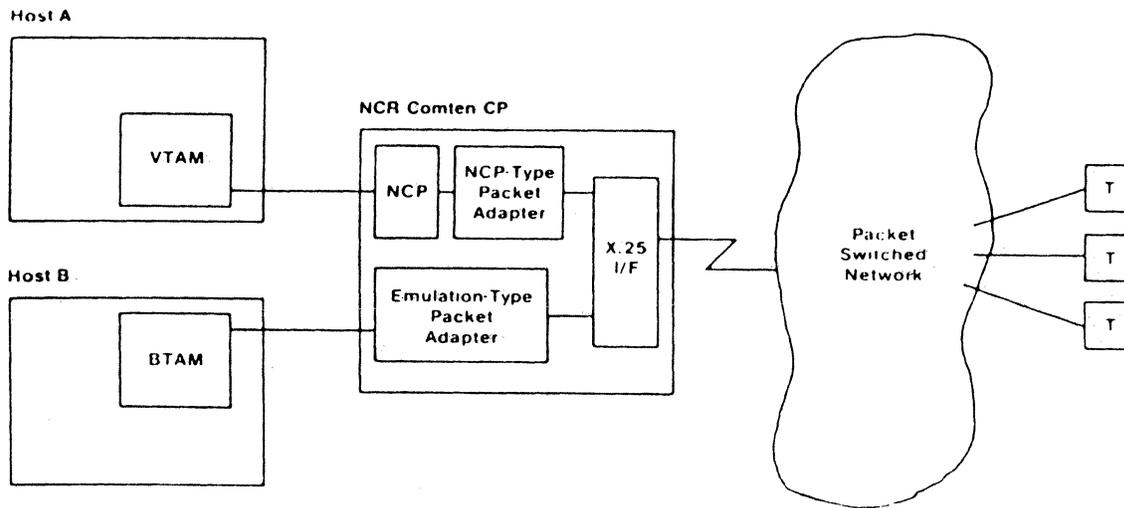
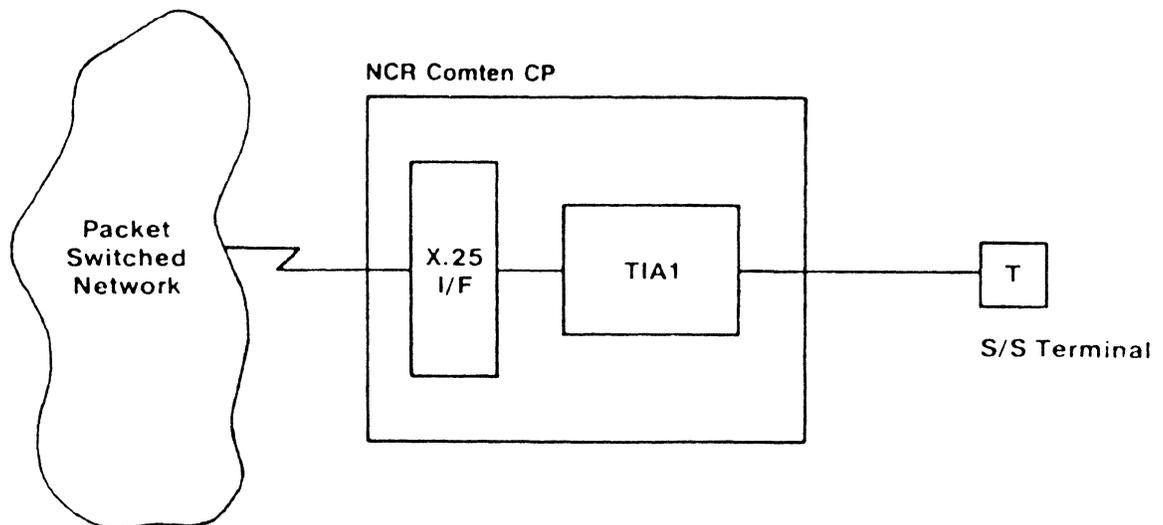


Figure 3-31: X.25 Module Structure

TIA1 MODULE

The Terminal Interface Adapter 1 (TIA1) module allows start/stop terminals attached directly to the NCR Comten processor to gain access to an X.25 network. Figure 3-32 shows a TIA1 configuration.

Terminals using TIA1 exclusively are assigned to virtual circuits permanently maintained by TIA1. These virtual circuits are specified by the MEM parameter N TIA1 VC. In addition, there may be a pool of free virtual circuits available for use by terminals that switch between TIA1 and another system control software, i.e., EP or NCP. This switching is performed by TILS. The free virtual circuits are specified by the MEM parameter N TILS LN USING TIA1.



NF011

Figure 3-32: TIA1 Configuration

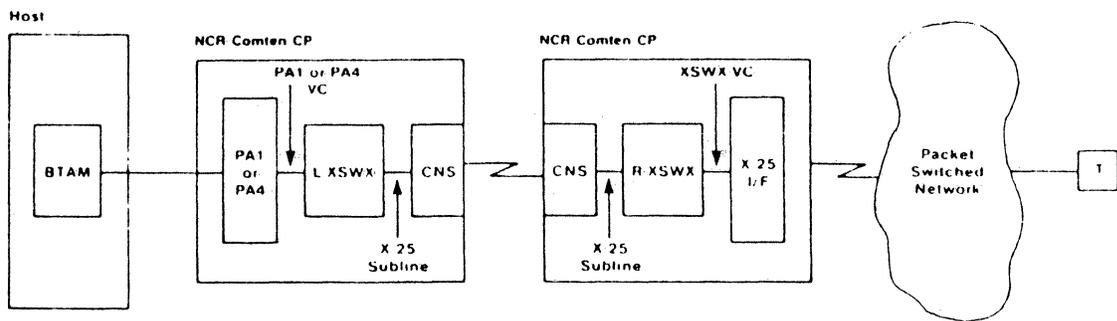
X.25 SECTION

XSWX MODULE

The X-switch (XSWX) module of the X.25 product provides X.25 virtual circuits with access to a CNS network. X.25 packets may be sent over a CNS trunk to a host at another node.

Figure 3-33 shows an XSWX configuration. An X.25 terminal using XSWX is connected to a virtual circuit in the remote processor. These virtual circuits are specified to MEM as N VCS USING XSWX. The virtual circuit is then assigned to an XSWX/CNS subline. Virtual circuits may share a subline. XSWX sublines must be specified in both the remote node and the host node, using the N SUBLINES parameter. There must be equal numbers of sublines in each node.

In the host node, the subline must be connected to a virtual circuit belonging to the appropriate emulation-type packet adapter (PA1 or PA4A). These virtual circuits are separate from any other virtual circuits handled by the packet adapter, and must be added to the value specified for N SS PA1 VC or N BSC PA4A VC parameter.



NF014

Figure 3-33: XSWX Configuration

PCNS MODULE

X.25-1 can include as an option the packet adapter for the Communications Networking System (PCNS) module. This allows the CNS3 product to use X.25 virtual circuits as trunk circuits between NCR Comten processors.

Figure 3-34 shows a CNS3 configuration using virtual trunk circuits. In this example, CNS3 is using both conventional circuits and X.25 virtual circuits to carry trunked traffic between nodes of a network. The number of virtual circuits that may be used by CNS3 for trunking is specified by the MEM parameter N CNS3 TRUNK VC. If this parameter is used, the virtual circuits must also be specified in a CNS input section.

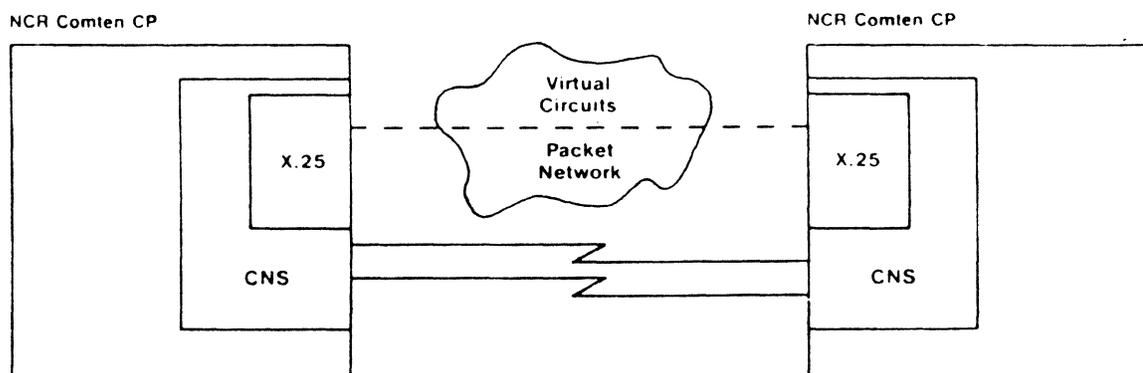


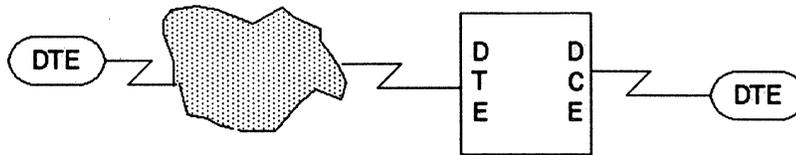
Figure 3-34: PCNS Configuration

AXCS MODULE

The Advanced X.25 Connection Services module of the X.25 V2 product provides (1) extended connectivity which allows L4-to-L4 (PAD-to-PAD) and X.25 virtual circuit-to-X.25 virtual circuit connectivity and (2) remote node access through Network Router/CNS providing any L4 or X.25 virtual circuit connectivity within the NSS network.

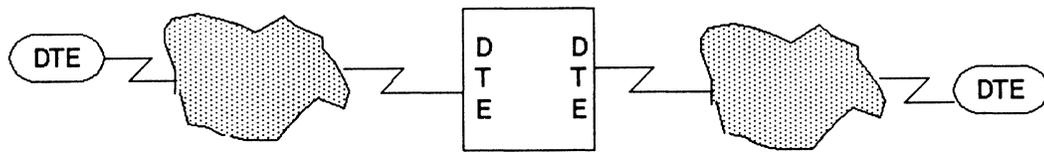
While AXCS allows for several new configurations, the only new feature that causes changes in MEM is the ability to connect virtual circuits in an intermediate capacity (N AXCS CONNECTIONS=). At this level, packet adapters and TPADs are not needed. The new configurations with PADs (i.e., PAD-to-PAD and PAD-to-remote) use existing keywords to specify the virtual circuits. Also, it does not matter for tables whether another node is accessed by NSS/CNS or X.25 link.

The first line of the input file for this section is @X25. The parameters for X.25 may appear in any order.



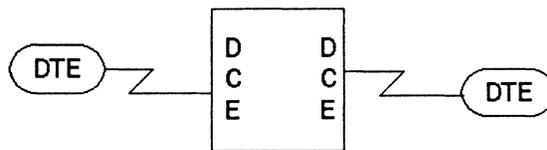
W FEATURES = AXCS
N AXCS CONNECTIONS = 1

Figure 3-35: Network-attached DTE to LINK-attached DTE Configuration



W FEATURES = AXCS
N AXCS CONNECTIONS = 1

Figure 3-36: Network-attached DTE to network-attached DTE Configuration



W FEATURES = AXCS
N AXCS CONNECTIONS = 1

Figure 3-37: Link-attached DTE to link-attached DTE Configuration

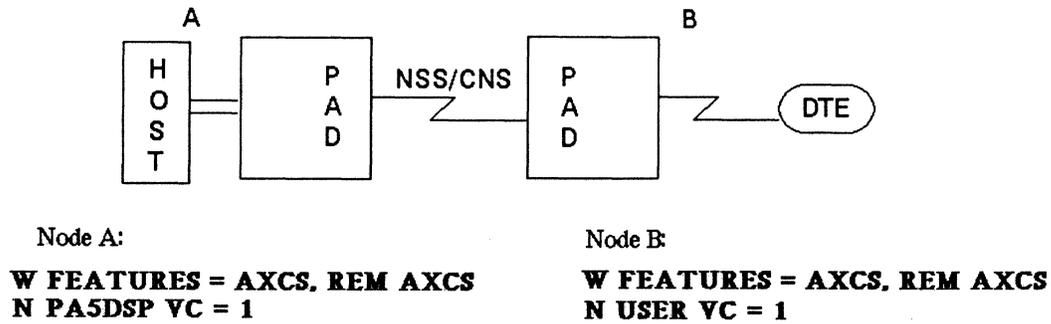


Figure 3-38: PAD-to-PAD in two nodes using the Network Router Configuration

PAD to PAD in the same node

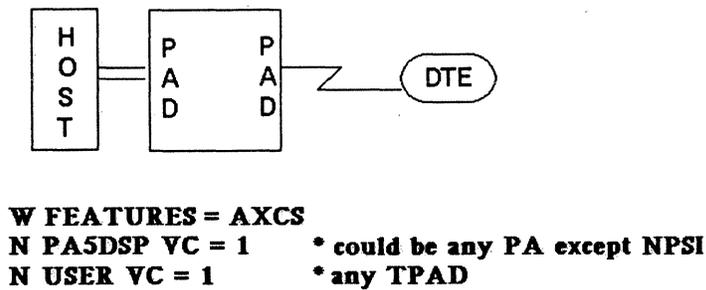


Figure 3-39: PAD-to-PAD in the same node Configuration

**SOFTWARE PRODUCT = X251
X252**

Required

This literal parameter specifies the version of X.25 software for this NCR Comten processor. The option that can be specified is:

X251 - This specification indicates X.25 software.

X252 - This specification indicates X.25 V2 software.

There is no default value for this parameter.

**5E
RELEASE = 6E
1**

Required

This literal parameter specifies the software product release of X.25 for this NCR Comten processor. The options that can be specified are:

5E - This specification indicates Release 5E.

6E - This specification indicates Release 6E.

1 - This specification indicates release 1, which is valid for V2.

There is no default value for this parameter.

FEATURES = cccc,.....,cccc

This multivalued literal parameter indicates the inclusion of specified NCP software features. These features are selected by the system user through the system generation. The options that can be specified are:

FSCN - This specification indicates that Fast Connect is a feature of this system.

TTBL - This specification indicates that Standard IA5/EBCDIC Translation Table is a feature of this system.

AXCS - This specification indicates that Advanced X.25 Connection Services are a feature of this system. In the NDP gen, this feature is included if the X25NODE macro NETDEFN= keyword is coded.

REM AXCS - This specification indicates that AXCS will use the Network Router to connect virtual circuits in remote nodes. The @NSS section should also be parameterized. In the NDP gen, this feature is included if the X25NODE macro MAXRCI= keyword is greater than zero.

ADMINISTRATIONS = cccc, ..., cccc
TELN

This multivalued literal parameter specifies the X.25 administrations that access this NCR Comten processor. The options that can be specified are:

- CCIT - This specification indicates that X.25 can exchange information with the CCITT network (Consultative Committee International Telephone and Telegraph).
- DDN - This specification indicates that X.25 can exchange information with the Data Defense Network.
- DDX - This specification indicates that X.25 can exchange information with the Japanese DDX/PSN network.
- DN1 - This specification indicates that X.25 can exchange information with the Dutch DN1 network.
- DPAC - This specification indicates that X.25 can exchange information with the DATAPAC network (Trans-Canada Telephone System).
- DTXP - This specification indicates that X.25 can exchange information with the DATEX P network (Post, Telephone, and Telegraph of Germany).
- LPAC - This specification indicates that X.25 can exchange information with the LUXPAC network.
- TELN - This specification indicates that X.25 can exchange information with the TELENET network (General Telephone and Electronics). This is the default value.
- TPAC - This specification indicates that X.25 can exchange information with the TRANSPAC network (Post, Telephone, and Telegraph of France).
- TYMN - This specification indicates that X.25 can exchange information with the TYMNET network (Tymeshare, Inc.).
- UKPS - This specification indicates that X.25 can exchange information with the PSS network (Packet Switching Service of the United Kingdom).
- UNET - This specification indicates that X.25 can exchange information with the UNINET network.
- OTHR - This specification indicates that X.25 can exchange information with either a private X.25 network or a public network that is not included in the above list.

Specify the character strings of all appropriate values. A comma must follow each character string. The default value for this parameter is TELN.

N LINKS = n
1

This integer parameter specifies the total number of physical lines from this NCR Comten processor to the X.25 network(s). There should be at least one link per network. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 1.

N SS PA1 VC = n
0

This integer parameter specifies the number of virtual circuits that carry emulation start/stop traffic to an emulation type (BTAM) host at this NCR Comten processor. These virtual circuits are under control of Packet Adapter 1. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SS PA2 VC = n
0

This integer parameter specifies the number of virtual circuits that carry NCP start/stop traffic to an NCP-type (VTAM) host at this NCR Comten processor. These virtual circuits are under control of Packet Adapter 2. They should also be defined in the NCP section as SS lines. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SNA PA3 VC = n
0

This integer parameter specifies the number of virtual circuits that carry SNA traffic to an NCP-type (VTAM) host at this NCR Comten processor. These virtual circuits are under control of Packet Adapter 3. They should also be defined in the NCP section as SNA lines. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N BSC PA4A VC = n

This integer parameter specifies the number of virtual circuits that carry emulation BSC traffic to an emulation-type (BTAM) host at this NCR Comten processor. These virtual circuits are under control of Packet Adapter 4A. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0. If no other virtual circuits are parameterized then the default value is 1.

N BSC PA5A VC = n
0

This integer parameter specifies the number of virtual circuits that carry BSC traffic to an NCP-type (VTAM) host at this NCR Comten processor. These virtual circuits are under control of Packet Adapter 5A. PA5A allows one cluster controller per terminal line. These virtual circuits should also be defined in the NCP section as BSC clusters and lines. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N BSC PA5D VC = n
0

This integer parameter specifies the number of virtual circuits that carry BSC traffic to an NCP-type (VTAM) host at this NCR Comten processor. These virtual circuits are under control of Packet Adapter 5D. PA5D allows more than one cluster controller per terminal line. These virtual circuits should also be defined in the NCP section as BSC clusters and terminals. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N BSC PA5DSP VC = n
0

This integer parameter specifies the number of virtual circuits that carry BSC traffic to an NCP-type (VTAM) host at this NCR Comten processor. These virtual circuits are under control of Packet Adapter 5DSP. PA5DSP allows more than one cluster controller per terminal line. These virtual circuits should also be defined in the NCP section as BSC terminals. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N NPSI VC = n
0

This integer parameter specifies the number of virtual circuits controlled by NPSI (NCP Packet Switching Interface). A NPSI virtual circuit should be included for each:

- logical line
- VCLU (Virtual Circuit Logical Unit)

NOTE: A VCLU is a logical unit associated with NPSI that exists only for certain NPSI features. It is this logical unit that NCP uses to communicate with a device on an X.25 line. There is one VCLU per X.25 link controlled by one of these features. See the NPSI FEATURES keyword description to find out which features are associated with a VCLU.

In the NCP section, an SNA line must also be included for each NPSI line and for each VCLU.

Specify an integer greater than or equal to 0 ($n \geq 0$). The default for this parameter is 0.

NPSI FEATURES = cccc, ... , cccc

This multivalued literal parameter indicates the inclusion of specified NPSI (NCP Packet Switching Interface) features. These features are selected by the system user through the system generation. The options that can be specified are:

- PSHC - This specification indicates that the Physical Services Header Code will control at least one NPSI virtual circuit.
- PCNE - This specification indicates that the Protocol Converter for Non-SNA Equipment will control at least one NPSI virtual circuit. This feature is associated with a VCLU (see N NPSI VC).
- BQLL - This specification indicates that the Boundary Network Node-Qualified Logical Link Control will control at least one NPSI virtual circuit.
- IQLL - This specification indicates that the Intermediate Network Node-Qualified Logical Link Control will control at least one NPSI virtual circuit.
- IPAD - This specification indicates that the Integrated Packet Assembler/Disassembler will control at least one NPSI virtual circuit. This feature is associated with a VCLU (see N NPSI VC).
- TPAD - This specification indicates that the Transparent Packet Assembler/Disassembler will control at least one NPSI virtual circuit. This feature is associated with a VCLU (see N NPSI VC).

X.25 SECTION

- GATE** - This specification indicates that the General Access to X.25 Transport Extension will control, through the CTCP (Communication and Transmission Control Program) in the host, at least one NPSI virtual circuit. This feature is associated with a VCLU (see N NPSI VC).
- DATE** - This specification indicates that the Dedicated Access to X.25 Transport Extension will control, through the CTCP (Communication and Transmission Control Program) in the host, at least one NPSI virtual circuit. This feature is associated with a VCLU (see N NPSI VC).

There is no default for this parameter.

N VCS USING XSWX = n
0

This integer parameter specifies the number of remote virtual circuits that use a CNS network to transfer traffic to an emulation-type (BTAM) host under the control of XSWX. It is needed only at the NCR Comten processor attached to the X.25 network. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N SUBLINES = n
0

This integer parameter specifies the number of XSWX CNS sublines that are used to transmit traffic for XSWX virtual circuits. This parameter should be specified for both the host node and the remote node. Equal values should be used. In the host node, additional virtual circuits will be used by these sublines. They should be specified under N SS PA1 VC or N BSC PA4A VC. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N TIA1 VC = n
0

This integer parameter specifies the number of virtual circuits used by S/S terminals attached to this NCR Comten processor and permanently assigned to Terminal Interface Adapter 1. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N TILS LN USING TIA1 = n
0

This integer parameter specifies the maximum number of virtual circuits that are available for S/S terminals using TILS to switch to Terminal Adapter 1. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N CNS3 TRUNK VC = n
0

This integer parameter specifies the maximum number of virtual circuits defined at this NCR Comten processor to be used as CNS3 trunk lines. If this parameter is used, a CNS section should be included in the MEM input file. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N PERM VC = n
0

This integer parameter specifies the total number of permanent virtual circuits defined at this NCR Comten processor for all packet adapters. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N USER VC = n
0

This integer parameter specifies the number of virtual circuits reserved for users of X.25 (i.e., DSM). This keyword corresponds to the value specified for the X25USVC macro USERSVC= keyword. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 0.

N ACT SWX VC = n

This integer parameter specifies the number of the switched virtual circuits that may be active at one time. In the NDP gen, this corresponds to the value specified for the X25NODE macro VCBS= keyword. The default value for this keyword is the total number of switched virtual circuits defined (those which are not permanent).

Note for those parameterizing MEM from an X.25 V2 gen:

N ACT SWX VC and N AXCS CONNECTIONS allocate the same control block, although N AXCS CONNECTIONS allocates two of them (VCBs). For switched virtual circuits these are explicitly specified in the gen for both AXCS and PAD SVCs by the same X25NODE macro VCBS= keyword. The gen default for VCBs for SVCs defaults to the number of virtual circuits specified on the X25LINK macro INSVCS=, OUTSVCS=, and TWSVCS= keywords and the X25NODE macro MAXRCI= keyword.

X.25 SECTION

PACKET SIZE = n
1024

This integer parameter specifies the average maximum packet size in bytes for the X.25 administration(s) at this NCR Comten processor. The packet size is network dependent and is 1024 for TELENET, 256 for DATAPAC, 128 for either TRANSPAC, TYMNET, DATEX-P, UKPSS, CCITT, DN1, or UNINET, and 0 for any other. The default value for this parameter is 1024.

WINDOW SIZE = n
2

This integer parameter specifies the maximum number of outstanding (unacknowledged) packets on each X.25 link at this NCR Comten processor. (This is the X.25 Level 3 window size.) The value is network dependent and is 2 for DATAPAC, TELENET, TYMNET, DATEX P, DN1, and UKPSS, 3 for TRANSPAC or CCITT, and 0 for any other. The default value for this parameter is 2.

INPUT MSG LENGTH = n
30

This integer parameter specifies the average input message length in characters for interactive X.25 traffic at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 30 characters.

OUTPUT MSG LENGTH = n
300

This integer parameter specifies the average output message length in characters for interactive X.25 traffic at this NCR Comten processor. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value for this parameter is 300 characters.

N PA5A TERM = n

This integer parameter specifies the number of all the devices on all the virtual circuits controlled by PA5A. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value is five devices for each virtual circuit controlled by PA5A.

N PA5D CLUSTERS = n

This integer parameter specifies the number of all the clusters controlled by PA5D. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value is one cluster for every 10 virtual circuits controlled by PA5D.

N PA5D LINES = n

This integer parameter specifies the number of all the lines controlled by PA5D. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value is one line for every 10 clusters used by virtual circuits controlled by PA5D.

N PA5DSP CLUSTERS = n

This integer parameter specifies the number of all the clusters controlled by PA5DSP. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value is one cluster for every 10 virtual circuits controlled by PA5DSP.

N PA5DSP LINES = n

This integer parameter specifies the number of all the lines controlled by PA5DSP. Specify an integer greater than or equal to 0 ($n \geq 0$). The default value is one line for every 10 clusters used by virtual circuits controlled by PA5DSP.

N AXCS CONNECTIONS = n
0

This integer parameter specifies the number of pairs of virtual circuits that AXCS connects. The Comten processor is acting as an intermediate node in this case. Do not specify HPAD (like PA5DSP) or TPAD (like User VC for HIFDSP) virtual circuits as these are covered by the N xxxx VC= keywords. This keyword applies to X.25 V2 or higher.

In the gen, the number of possible AXCS connections is limited by the number of VCBs allocated. Two VCBs are required for each connection (one for each virtual circuit). PVC VCBs for AXCS connections are reserved with the X25PVC macro LCI= and REMPVC= keywords. VCBs for SVCs may specified explicitly by the X25NODE macro VCBS= keyword (this keyword reserves VCBs for PAD SVCs as well). In the gen, the number of VCBs for SVCs defaults to the number of virtual circuits specified on the X25LINK macro INSVCS=, OUTSVCS=, and TWSVCS= keywords and the X25NODE macro MAXRCI= keyword.

The MEM default is 0.

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

SECTION 4

MEM OUTPUT REPORT

GENERAL

The EXAMS 3.0 MEM output report presents a detailed estimate of the storage required in an NCR Comten processor, based on the configuration described by the user. All storage-related factors, including the communication software present and the network configuration, are documented to provide a detailed node description. The storage estimate is broken down by software products, and the various components of storage are detailed for each product.

The MEM report consists of four parts:

- o the input parameters as specified by the user
- o a page of warning messages, if errors were detected in the input parameterization
- o a summary of the estimated required storage
- o a detailed estimate of the storage required for each product

Section 5 of this manual presents sample MEM analyses and contains the corresponding MEM output reports. Most of the examples in the remainder of this section are drawn from these sample analyses.

INPUT PARAMETERS

The first part of the MEM report echoes the user's input file for documentation purposes. If there are any misspelled keywords, they will be identified at this point.

WARNING MESSAGES

The second part of the MEM report consists of warning messages to the user, and will not appear if the input file is error free. Some of the messages indicate fatal error conditions. If any fatal error messages appear, the program will stop execution after printing all applicable warnings. Examples of fatal errors are misspelled keywords, missing input sections for products requested in the NODE section, and omitting the product version or release parameter for any product.

MEM also checks the input file for inconsistent parameterization and will print appropriate warning messages. These conditions do not halt execution of the program, but call the user's attention to possible errors in the parameterization. An example of such a warning condition would be parameterizing remote MAF devices but omitting the CNS product section. After

printing these warning messages, MEM will calculate the output results and print the rest of the report. However, the user should be aware that if warning messages were printed, the input file may not reflect the configuration that was intended to be modeled, and the output report may not be applicable.

The MEM warning messages are intended to guide the user in checking the input file to correct any errors in it. Each message consists of a unique identifying number and one or two sentences explaining the error. An example of a warning message is shown in Figure 4-1.

MEM 705(W):

REMOTE MAF RESOURCES WERE SPECIFIED, BUT CNS WAS NOT INCLUDED IN THIS SYSTEM: REQUIRED.

Figure 4-1: MEM Warning Message

The identification number for this message is 705. The message points out that the user has parameterized remote MAF devices but has not specified that the CNS software necessary for remote traffic is present in the node. If further clarification is needed, Appendix D explains the MEM error messages. Questions can also be referred to the department of Capacity Planning or Network Engineering at NCR Comten headquarters. Record the error identification number and have a copy of the MEM input file available.

SUMMARY PAGES

There are two summary pages immediately following the input parameters and the warning messages, if any. Figures 4-2 and 4-3 are examples of the summary pages for a 3690 processor at site MSP. The first of these pages is a graphic summary showing the configuration described by the user, including the host processors, number and types of communication lines, number of trunk lines to other nodes, and the software products that are present. The model number of the NCR Comten processor and the name of the site, if specified, are shown at the top of the picture.

In addition, the total storage requirements estimated by MEM for code, tables, and buffers are shown. In the example in Figure 4-2, the configuration shown required 736 thousand bytes of executable code, 189 thousand bytes of control blocks and tables, and 78 thousand bytes of dynamic storage for buffers. The second summary page, shown in Figure 4-3, is a table showing the breakdown of storage by product. Storage for basic system software, such as the dispatcher and its tables, are shown in the line labeled COS2/90. The requirement for code, tables, and buffers is shown for each software product in the node, and totaled horizontally by product and vertically by storage components. The totals shown for the storage components are the same figures that appeared on the first summary page.

C O S M E M O R Y E S T I M A T I O N M O D E L

NCR COMTEN 3690 AT MSP

THE MEMORY REQUIREMENTS FOR THIS NODE ARE:

EXECUTABLE CODE:	736 THOUSAND BYTES
CONTROL BLOCKS:	189 THOUSAND BYTES
ESTIMATED BUFFER POOL:	78 THOUSAND BYTES
TOTAL SYSTEM:	1003 THOUSAND BYTES

THE SOFTWARE PRODUCTS IN THIS NODE ARE:

COS2/90	R4 - COMMUNICATIONS OPERATING SYSTEM
NSS1	R3E - NETWORK SUPPORT SERVICES
ACF/NV40	R1E - NETWORK CONTROL PROGRAM

90 TERMINAL LINES

1 IBM HOST(S)

THE TOTAL SYSTEM STORAGE IS 979 K BYTES (1K = 1024).
 EACH BUFFER REQUIRES 152 BYTES.

Figure 4-2: Configuration Summary Page Example

PRODUCT STORAGE SUMMARY (THOUSANDS OF BYTES) FOR NCR COMTEN 3690 AT MSP

SYSTEM CONTROL SOFTWARE PRODUCT	EXECUTABLE CODE	TABLES AND CONTROL BLOCKS	ESTIMATED SYSTEM BUFFER POOL	TOTALS BY PRODUCT
COS2/90 R4	307	55	23	385
NSS1 R3E	13	2	2	17
ACF/NV40 R1E	416	132	53	601
SYSTEM TOTALS	736	189	78	1003

Figure 4-3: Product Summary Page Example

SOFTWARE PRODUCT ENVIRONMENTS

The last section of the MEM output report has one page for each software product that is present in the node. These pages are titled product environment pages, since they describe the environment of storage-related factors that affect each product. In addition, they provide information on many of the components of the storage required by that product, and a table of the subtotals for each function being supported by the product. Figure 4-4 is an example of a product environment page.

The page can be divided into four parts. The first two parts describe the product and the special features of the particular version and release being modeled. In Figure 4-4, the product modeled was ACF/NCP V4.0. The description mentions several features that are new with ACF/NCP V4.0.

The third part of the environment page, under the title "Product Topology and Storage Requirements", describes the more important features of the configuration as parameterized by the user, including the number and types of communication lines and the optional software features that were requested. The particular features reported will vary for each product. A feature of MEM is the reporting of the storage required for each additional line or terminal device. (Usually this storage consists of tables and control blocks.) This feature enables the user to calculate the additional storage that will be required for future network expansion without performing a new execution of MEM. It should be noted, though, that the storage reported on one product environment page may not include all the storage required by that line or device. For instance, if an NCP SNA line were added, it would require 478 bytes of additional storage for NCP control blocks and buffers, but it would also require 50 bytes of storage for DLC-MIM software tables. The same line could also pass through MAF or SRM, which would require more storage.

The last part of the product environment page is a table of the subtotals of code, tables, and buffers for each function supported by the product. In the example, subtotals are reported for basic NCP functions (those used by every NCP system), pre-SNA device support, SNA device support, ACF trunking and/or virtual routing support, and additional software options that were specified by the user. In the example, it is seen that basic NCP functions require only a small amount of buffer space (6160 bytes), while the pre-SNA and SNA terminals require much more (17,703 and 28,939 bytes, respectively).

From the table the user can see which functions require the largest share of storage, and find what changes will be most useful if storage is approaching a limit.

N C P E N V I R O N M E N T (N V 4 0 R I E)

PRODUCT DESCRIPTION :
 THE ADVANCED COMMUNICATION FUNCTION/NETWORK CONTROL PROGRAM PROVIDES CONTROL FOR THE OPERATION OF A DATA COMMUNICATIONS NETWORK. WHEN OPERATING WITH THE HOST RESIDENT MULTI-SYSTEM NETWORK FACILITY (MSNF), ACF/NCP OFFERS TRUE NETWORKING THROUGH INTERCONNECTION OF HOST COMPUTERS. THIS RESULTS IN INCREASED ACCESSIBILITY TO DATA THROUGH CROSS-ODMAIN SHARING OF RESOURCES. IN ADDITION, ACF/NCP PROVIDES THE CAPABILITY TO TRANSFER CONTROL OF COMMUNICATION LINES BETWEEN NETWORK HOSTS PROVIDING BACKUP IN THE EVENT OF HOST FAILURE.

RELEASE FEATURES :
 THE ADVANCED COMMUNICATION FUNCTION/NETWORK CONTROL PROGRAM VERSION 4.0 SUPPORTS ALL THE FEATURES AND FUNCTIONS OF THE PREVIOUS RELEASES OF ACF/NCP. THE MAJOR ADDITION IS EXTENDED NETWORK ADDRESSING (ENA). ALSO ADDED ARE FORCED DEACTIVATION ENHANCEMENTS, LPDA ENHANCEMENTS, AND SWITCHED BSC SUPPORT.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS :

 THE PRE-SNA RESOURCES WITH THEIR TABLE/CONTROL BLOCK STORAGE REQUIREMENTS ARE
 40 BSC LINES EACH ADDITIONAL LINE REQUIRES 408 BYTES
 40 BSC CONTROL UNITS EACH ADDITIONAL CONTROL UNIT REQUIRES 150 BYTES
 160 BSC TERMINALS EACH ADDITIONAL TERMINAL REQUIRES 134 BYTES

THE SNA RESOURCES WITH THEIR TABLE/CONTROL BLOCK STORAGE REQUIREMENTS ARE
 50 SNA LINES EACH ADDITIONAL LINE REQUIRES 478 BYTES
 100 PHYSICAL UNITS EACH ADDITIONAL PHYSICAL UNIT REQUIRES 216 BYTES
 300 LOGICAL UNITS EACH ADDITIONAL LOGICAL UNIT REQUIRES 132 BYTES

THE SPECIAL FEATURES SELECTED FOR THIS SYSTEM ARE
 GPT - GENERALIZED PIU TRACE
 NLDM - NETWORK LOGICAL DATA MANAGER SESSION TRACE

THE OPTIONAL UTILITIES AND MODULES FOR THIS SYSTEM ARE
 SNA - SNA LINK SCHEDULER TRACE
 NCPS - NCP STATISTICS
 CHU - CONSOLE HOST UTILITY

THE ESTIMATED STORAGE REQUIREMENTS FOR NCP IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
119320	7171	6160	BASIC NCP
60072	41840	17703	PRE-SNA TERMINAL RESOURCES
7024	81500	28939	SNA TERMINAL RESOURCES
102352	1447	0	TRUNKING AND ROUTING
22640	0	-	NCP FEATURES
39024	-	-	MODULES AND UTILITIES

416432	131958	52802	TOTALS (BYTES)

Figure 4-4: Product Environment Page Example

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

C O S M E M O R Y E S T I M A T I O N M O D E L

NCR COMTEN 3690 AT MSP

.....
 * 1 IBM *
 * HOST(S) *

THE MEMORY REQUIREMENTS FOR THIS NODE ARE:

EXECUTABLE CODE: 736 THOUSAND BYTES
 CONTROL BLOCKS: 189 THOUSAND BYTES
 ESTIMATED BUFFER POOL: 78 THOUSAND BYTES
 TOTAL SYSTEM: 1003 THOUSAND BYTES

----- 90 TERMINAL LINES

THE SOFTWARE PRODUCTS IN THIS NODE ARE:

COS2/90 R4 - COMMUNICATIONS OPERATING SYSTEM
 NSS1 R3E - NETWORK SUPPORT SERVICES
 ACF/NV40 R1E - NETWORK CONTROL PROGRAM

THE TOTAL SYSTEM STORAGE IS 979 K BYTES (1K = 1024).
 EACH BUFFER REQUIRES 152 BYTES.

PRODUCT STORAGE SUMMARY (THOUSANDS OF BYTES) FOR NCR COMTEN 3690 AT MSP

SYSTEM CONTROL SOFTWARE PRODUCT	I	EXECUTABLE CODE	TABLES AND CONTROL BLOCKS	ESTIMATED SYSTEM BUFFER POOL	I	TOTALS BY PRODUCT
COS2/90 R4	I	307	55	23	I	385
NSS1 R3E	I	13	2	2	I	17
ACF/NV40 R1E	I	416	132	53	I	601
SYSTEM TOTALS	I	736	189	78	I	1003

PROPRIETARY DATA

Use requires license from NCR Comten, Inc. or its authorized distributor.

C C S E N V I R O N M E N T (COS2/90 R4)

PRODUCT DESCRIPTION:
 THE COMMUNICATIONS OPERATING SYSTEM (COS) CONTAINS THE DISPATCHER, VARIOUS CONSOLE UTILITIES, AND SEVERAL OPTIONAL SPECIAL PURPOSE PROGRAMS. THE MODULAR DESIGN OF COS2 ISOLATES ALL HARDWARE DEPENDENT SOFTWARE AND REMOVES INTERDEPENDENCIES BETWEEN PRODUCTS AND HARDWARE. THE DISPATCHER IS THE EXECUTIVE OF THE COMTEN SYSTEM. IT IS RESPONSIBLE FOR DISPATCHING INTERRUPTS TO ACCESS MODULES AND SCANNING ALL TIMERS AND QUEUES.

RELEASE FEATURES:
 COS2/90 R4 PROVIDES THE FUNCTIONS THAT COS2/90 R3 PROVIDES PLUS SUPPORTS COMM BASES, LOAD/DUMP HISTORY, AND SUBCHANNEL RAPID RESTART AND RECOVERY.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS:

 THE SOFTWARE MODULE CUTE AND THE FOLLOWING CUTE UTILITIES ARE RECOMMENDED FOR ALL SYSTEMS AND ARE INCLUDED IN THE STORAGE FOR THIS SYSTEM:
 THE DISPLAY COMMANDS - DBFR, DALL
 THE CONTROL COMMANDS - ENABLE, RESET, STATUS, SWAP - SYSTEM RESET
 FIND - CORE SEARCH SYSRST - SET/CLEAR THE ADDRESS FAR
 CIMD - CIM CODE DETECT CIADDR - SYSTEM UTILIZATION MONITOR
 MFH - MACHINE FAULT HANDLER

THE OPTIONAL COS SOFTWARE MODULES SELECTED FOR THIS SYSTEM ARE
 CRAW - CORE IMAGE CASSETTE TAPE READ/WRITE
 DLCU - DLC-MIM UTILITY MODULE

THE OPTIONAL COS UTILITY FUNCTIONS SELECTED FOR THIS SYSTEM ARE
 SLDN - SYSTEM SLOW-DOWN STATISTICS

THE SPECIAL FEATURES SELECTED FOR THIS SYSTEM ARE
 HCSO - HIGH CAPACITY AUXILIARY STORAGE DEVICE
 CSUPP - C RUNTIME SUPPORT

THERE ARE 4 DLC MIMS. EACH ADDITIONAL ONE REQUIRES CONTROL BLOCKS OF 92 BYTES.
 THERE ARE 50 DLC MIM LINES. EACH ADDITIONAL ONE REQUIRES CONTROL BLOCKS OF 28 BYTES.

THE ESTIMATED STORAGE REQUIREMENTS FOR COS IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
103024	33062	22800	BASIC FUNCTIONS INCLUDING THE DISPATCHER
31312	-	-	LINE ACCESS MODULES (LAMS)
22272	0	-	MODULES
19576	13174	0	UTILITIES
130760	8504	-	SPECIAL FEATURES
-----	-----	-----	-----
306944	54740	22800	TOTALS (BYTES)

N S S E N V I R O N M E N T (NSS1 R3E)

PRODUCT DESCRIPTION:
 THE NCR NETWORK SUPPORT SERVICES 2 (NSS2) PROVIDES A VARIETY OF NETWORK SERVICES TO THE USERS OF NCR COMTEN. COMMUNICATIONS PROCESSORS OPERATING IN AN NCR HOST ENVIRONMENT TO SUPPORT THE TRANSFER OF FILES BETWEEN HOSTS AND CPS. WORKING IN CONJUNCTION WITH COS2 RUNNING IN THE CP NSS2 SUPPORTS THE FOLLOWING CAPABILITIES: LOAD OF LOCAL NCR COMTEN CPS FROM AN NCR BSL-ATTACHED HOST; ONLINE AND OFFLINE MEMORY DUMP FROM NCR COMTEN FEP TO THE HOST, AND PRINT OF MEMORY DUMP AT HOST PRINTER. NSS2 PROGRAM LOAD DEVICE (PLD) FUNCTIONS ENABLE USER TO LOAD A CP WITH OPERATIONAL SOFTWARE INDEPENDENT OF A HOST. MIM AND CP LOADER PROGRAMS CAN ALSO BE RELOADED FROM THE PLD. WHEN THE CONTENTS OF CP MEMORY HAS BEEN DUMPED TO THE PLD, NSS2 CAN SEND THIS DATA TO THE HOST TO BE PRINTED.

RELEASE FEATURES:
 NSS1 R3E IS FUNCTIONALLY EQUIVALENT TO NSS1 R2E, BUT HAS EXTENDED RIL CAPABILITY. THE RIL APPLICATION ALLOWS HLC-MIMS, CBS, AND OTHER SDLC LINE TERMINATION EQUIPMENT TO PERFORM A RIL IN SDLC PROTOCOL.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS:

 THIS SYSTEM HAS BEEN CONFIGURED TO INCLUDE THE NETWORK ROUTER AND THE FOLLOWING APPLICATIONS

DUMP - FOR PERFORMING ON-LINE DUMPS OF THE PROCESSOR
 THERE ARE 1 UTILITY SUBCHANNEL(S) EACH ADDITIONAL UTILITY SUBCHANNEL REQUIRES 228 BYTES

THE ESTIMATED STORAGE REQUIREMENTS FOR NSS IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
7480	1940	1824	BASIC NSS FUNCTIONS (INCLUDING NETWORK ROUTER)
1480	4	-	FOR OPTIONAL NSS APPLICATIONS
3648	26	-	FOR THE UTILITY SUBCHANNEL(S)
-----	-----	-----	-----
12608	2200	1824	TOTALS (BYTES)

N C P E N V I R O N M E N T (NV40 R1E)

PRODUCT DESCRIPTION :

THE ADVANCED COMMUNICATION FUNCTION/NETWORK CONTROL PROGRAM PROVIDES CONTROL FOR THE OPERATION OF A DATA COMMUNICATIONS NETWORK. WHEN OPERATING WITH THE HOST RESIDENT MULTI-SYSTEM NETWORK FACILITY (MSNF), ACF/NCP OFFERS TRUE NETWORKING THROUGH INTERCONNECTION OF HOST COMPUTERS. THIS RESULTS IN INCREASED ACCESSIBILITY TO DATA THROUGH CROSS DOMAIN SHARING OF RESOURCES. IN ADDITION, ACF/NCP PROVIDES THE CAPABILITY TO TRANSFER CONTROL OF COMMUNICATION LINES BETWEEN NETWORK HOSTS PROVIDING BACKUP IN THE EVENT OF HOST FAILURE.

RELEASE FEATURES :

THE ADVANCED COMMUNICATION FUNCTION/NETWORK CONTROL PROGRAM VERSION 4.0 SUPPORTS ALL THE FEATURES AND FUNCTIONS OF THE PREVIOUS RELEASES OF ACF/NCP. THE MAJOR ADDITION IS EXTENDED NETWORK ADDRESSING (ENA). ALSO ADDED ARE FORCED DEACTIVATION ENHANCEMENTS, LPDA ENHANCEMENTS, AND SWITCHED BSC SUPPORT.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS :

THE PRE-SNA RESOURCES WITH THEIR TABLE/CONTROL BLOCK STORAGE REQUIREMENTS ARE

40 BSC LINES	EACH ADDITIONAL LINE REQUIRES	408 BYTES
40 BSC CONTROL UNITS	EACH ADDITIONAL CONTROL UNIT REQUIRES	150 BYTES
160 BSC TERMINALS	EACH ADDITIONAL TERMINAL REQUIRES	134 BYTES

THE SNA RESOURCES WITH THEIR TABLE/CONTROL BLOCK STORAGE REQUIREMENTS ARE

50 SNA LINES	EACH ADDITIONAL LINE REQUIRES	478 BYTES
100 PHYSICAL UNITS	EACH ADDITIONAL PHYSICAL UNIT REQUIRES	216 BYTES
300 LOGICAL UNITS	EACH ADDITIONAL LOGICAL UNIT REQUIRES	132 BYTES

THE SPECIAL FEATURES SELECTED FOR THIS SYSTEM ARE
 GPT - GENERALIZED PIU TRACE
 NLDM - NETWORK LOGICAL DATA MANAGER SESSION TRACE

THE OPTIONAL UTILITIES AND MODULES FOR THIS SYSTEM ARE
 SNA - SNA LINK SCHEDULER TRACE
 NCPS - NCP STATISTICS
 CHU - CONSOLE HOST UTILITY

THE ESTIMATED STORAGE REQUIREMENTS FOR NCP IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
119320	7171	6160	BASIC NCP
60072	41840	17703	PRE-SNA TERMINAL RESOURCES
73024	81500	28939	SNA TERMINAL RESOURCES
102352	1447	0	TRUNKING AND ROUTING
22640	0	-	NCP FEATURES
35024	-	-	MODULES AND UTILITIES
416432	131958	52802	TOTALS (BYTES)


```

#X25
SOFTWARE PRODUCT = X251.
RELEASE = 6E.
FEATURES = FSCN.
ADMINISTRATIONS = DPAC. * X.25 VENDOR IS DATAPAC
N LINKS = 1.
N CNS3 TRUNK VC = 2.
N PERM VC = 2.
PACKET SIZE = 128.

```

```

DEPT. OF NETWORK ENGINEERING NCR COMTEN
MEMORY ESTIMATION MODEL FOR EXAMS 3.0 MEM EXAMPLE #2A
LIB. SERV. UPDATE LEVEL 89-02

```

```

EXAMS 3.0 MEM PAGE 1
FRI MAR 31 09:52:04 1989
PROPRIETARY DATA

```

C O S M E M O R Y E S T I M A T I O N M O D E L

NCR COMTEN 3690 AT DENV

```

*****
* 1 IBM *
* HOST(S) *
*****

```

THE MEMORY REQUIREMENTS FOR THIS NODE ARE:

```

EXECUTABLE CODE: 510 THOUSAND BYTES
CONTROL BLOCKS: 114 THOUSAND BYTES
ESTIMATED BUFFER POOL: 84 THOUSAND BYTES
TOTAL SYSTEM: 708 THOUSAND BYTES

```

----- 3 CNS TRUNK LINES

THE SOFTWARE PRODUCTS IN THIS NODE ARE:

```

COS2/90 R4 - COMMUNICATIONS OPERATING SYSTEM
NSS1 R3E - NETWORK SUPPORT SERVICES
NAF4 R1 - MULTIPLE ACCESS FACILITY
CNS3 R3E - COMMUNICATIONS NETWORKING SYSTEM
X.25-1 R6E - INTERFACE TO PUBLIC DATA NETWORKS

```

----- 1 X.25 LINKS

THE TOTAL SYSTEM STORAGE IS 691 K BYTES (1K = 1024).
EACH BUFFER REQUIRES 172 BYTES.

PROPRIETARY DATA

Use requires license from NCR Comten, Inc. or its authorized distributor.

M A F E N V I R O N M E N T (M A F 4 R 1)

PRODUCT DESCRIPTION :
THE MULTIPLE ACCESS FACILITY (MAF) PROGRAM PRODUCT PROVIDES INCREASED HOST ACCESSABILITY FOR 3270 TYPE DEVICES.
MAF EXTENDS LINE SWITCHING CAPABILITIES TO INCLUDE THE SWITCHING OF ANY COMBINATION OF DEVICES ON A CLUSTER
CONTROLLER TO HOST APPLICATION PROGRAMS USING EMULATION MODE ACCESS METHODS. IN ADDITION, SEVERAL DEVICES ON
THE SAME CONTROLLER MAY ESTABLISH CONCURRENT LOGICAL SESSIONS WITH DIFFERENT HOSTS AND HOST APPLICATIONS. MAF
CAN OPERATE IN A LOCAL OR A REMOTE COMMUNICATIONS PROCESSOR.

RELEASE FEATURES :
MAF4 R1 IS FUNCTIONALLY EQUIVALENT TO THE PREVIOUS RELEASE (MAF3 R3E) AND IT IS FULLY BACKWARD COMPATIBLE.
MAF4 R1 ADDS SUPPORT FOR THE EXTENDED NETWORK ADDRESSING FEATURE OF ACF/NCP VERSION 4.0 AND ABOVE.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS :

THE SNA RESOURCES WITH THEIR TABLE/CONTROL BLOCK STORAGE REQUIREMENTS ARE
100 REMOTE PHYSICAL UNITS EACH ADDITIONAL PHYSICAL UNIT REQUIRES 64 BYTES
300 REMOTE LOGICAL UNITS EACH ADDITIONAL LOGICAL UNIT REQUIRES 116 BYTES

THERE ARE 25 SUBCHANNELS EACH ADDITIONAL SUBCHANNEL REQUIRES 340 BYTES

THERE IS 1 MAF/CNS SUBLINE EACH ADDITIONAL SUBLINE REQUIRES 614 BYTES

FOR DETAILS OF THE NCP CODE, CONTROL BLOCKS, AND BUFFERS REQUIRED FOR THE MAF RESOURCES, SEE THE NCP ENVIRONMENT PAGE.

THE ESTIMATED STORAGE REQUIREMENTS FOR MAF IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
38368	722	-	BASIC MAF
13920	8500	6164	HOST SUPPORT
-	26	-	PRE-SNA TERMINAL RESOURCES
21688	-	-	SELECTED UTILITIES

73976	51764	6164	TOTALS (BYTES)

3690 Processor B

The memory estimation calculated for this node represents the requirements of an NCR Comten 3690 supporting ACF/NCP, MAF, CNS3, and X.25. ACF/NCP manages 50 SNA lines, each with two physical units and three logical units per physical unit. There are no locally attached hosts. Traffic from this node is destined for a remote host via a CNS trunk. The CNS trunk consists of three conventional CNS lines and two virtual circuits. The virtual circuits are supported by one HDLC link to a packet network.

This MEM analysis requires the following sections: NODE, NSS, MAF, NCP, CNS, and X25. The complete input file and excerpts from the MEM output report are shown for this analysis.

```
* EXAMS 3.0 MEM ANALYSIS REQUEST PARAMETERS
*****
* THIS EXAMPLE DEMONSTRATES THE MEMORY ESTIMATION MODEL
* FOR A 3690 PROCESSOR SUPPORTING CDS2/90 R4, NSS1 R3E,
* MAF4 R1, ACF/NCP V4.0, CNS3 R3E, AND X25-1 R6E
*****
*
*#NODE
W TITLE = 'EXAMS 3.0 MEM EXAMPLE #2R',
COS VERSION = 90,
COS RELEASE = 4,
SYSTEM BUFFER SIZE = 128,
SOFTWARE = NSS, MAF, NCP, CNS, X25,
FEATURES = DSKT,
* DISKETTE PROGRAM LOAD DEVICE
* C RUNTIME SUPPORT FOR NCP V4.0
N IBM HOSTS = 0,
* NO ATTACHED HOSTS
N MIMS = 6,
N DLC MIMS = 6,
N DLC MIM LINES = 54,
* TOTAL LINES ATTACHED TO DLC MIMS
SITE = CHI,
*
*#NSS
SOFTWARE PRODUCT = NSS1,
RELEASE = 3E,
N UTIL SUBCHANNELS = 0,
* NO ATTACHED HOSTS
N SUBLINES = 1,
*
*#MAF
SOFTWARE PRODUCT = MAF4,
RELEASE = 1,
N APPLICATIONS = 1,
N SNA LINES = 50,
* SNA LINES
* LOCAL SNA PHYSICAL UNITS
N LOC SNA PU = 100,
* LOCAL SNA LOGICAL UNITS
N LOC SNA LU = 300,
* REMOTE NODE PRESENT
N REM NODES = 1,
N SUBLINES = 1,
* NO ATTACHED HOSTS
N SUBCHANNELS = 0,
*
*#NCP
SOFTWARE PRODUCT = NV40,
RELEASE = 1E,
N SUBAREAS = 3,
N SUBCHANNELS = 0,
* NO ATTACHED HOSTS
* SNA LINES
N SNA LINES = 50,
* LOCAL SNA PHYSICAL UNITS
N SNA PU = 100,
* LOCAL SNA LOGICAL UNITS
N SNA LU = 300,
*
*#CNS
SOFTWARE PRODUCT = CNS3,
RELEASE = 2E,
MODULES = STAR,
N TRUNKS = 1,
* ONE PHYSICAL TRUNK
* THREE TRUNK LINES
N TRUNK LINES = 3,
* TWO X.25 VIRTUAL CIRCUITS
N CNS3 TRUNK VC = 2,
TRUNK LINE SPEED = 19.2,
```

```

*
*
PX2E
SOFTWARE PRODUCT = X251,
RELEASE = 6E,
ADMINISTRATIONS = DPAC, * X.25 VENDOR IS DATAPAC
N LINKS = 1,
N CNS3 TRUNK VC = 2,
N PERM VC = 2,
PACKET SIZE = 128,

```

```

DEPT. OF NETWORK ENGINEERING NCR COMTEN
MEMORY ESTIMATION MODEL FOR EXAMS 3.0 MEM EXAMPLE #2B
LIB. SERV. UPDATE LEVEL 89-02

```

```

EXAMS 3.0 MEM PAGE 1
FRI MAR 31 09:55:56 1989
PROPRIETARY DATA

```

C O S M E M O R Y E S T I M A T I O N M O D E L

NCR COMTEN 3690 AT CHI

THE MEMORY REQUIREMENTS FOR THIS NODE ARE:

```

EXECUTABLE CODE:      781 THOUSAND BYTES
CONTROL BLOCKS:      199 THOUSAND BYTES
ESTIMATED BUFFER POOL: 122 THOUSAND BYTES
TOTAL SYSTEM:        1102 THOUSAND BYTES

```

----- 50 TERMINAL LINES

----- 3 CNS TRUNK LINES

THE SOFTWARE PRODUCTS IN THIS NODE ARE:

```

COS2/90 R4 - COMMUNICATIONS OPERATING SYSTEM
NSS1    R3E- NETWORK SUPPORT SERVICES
MAF4    R1 - MULTIPLE ACCESS FACILITY
ACT/NV40 R1E- NETWORK CONTROL PROGRAM
CNS3    R2E- COMMUNICATIONS NETWORKING SYSTEM
X.25-1  R6E- INTERFACE TO PUBLIC DATA NETWORKS

```

----- 1 X.25 LINKS

THE TOTAL SYSTEM STORAGE IS 1076 K BYTES (1K = 1024).
EACH BUFFER REQUIRES 172 BYTES.

PROPRIETARY DATA

Use requires license from NCR Comten, Inc. or its authorized distributor.

C N S E N V I R O N M E N T (CNS3 R2E)

PRODUCT DESCRIPTION :
THE COMMUNICATIONS NETWORKING SYSTEM (CNS) PROGRAM PRODUCT ALLOWS THE USER OF NCR COMTEN SOFTWARE SYSTEMS TO EXPAND A NETWORK BY CONNECTING COMTEN COMMUNICATIONS PROCESSORS RESIDING IN DIFFERENT LOCATIONS. A HIGH-SPEED FULL DUPLEX TRUNK CONNECTS THE 3600 CPS AND ELIMINATES THE NEED FOR INDIVIDUAL LINES BETWEEN EACH TERMINAL AND THE FRONT END PROCESSOR. CNS CAN INTERLEAVE BLOCKS OF DATA FROM S/S, BSC, AND SDC TERMINALS OVER REAL CIRCUIT OR X.25 VIRTUAL CIRCUIT TRUNK LINES.

RELEASE FEATURES :
CNS3 R2E IS COMPLETELY COMPATIBLE WITH CNS3 R1E WITH THE ADDED CAPABILITY TO TRANSMIT OVER X.21 CIRCUITS, BOTH LEASED AND SWITCHED.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS :

THE CNS RESOURCES WITH THEIR TABLE/CONTROL BLOCK STORAGE REQUIREMENTS ARE
1 TRUNKS EACH ADDITIONAL TRUNK REQUIRES 872 BYTES
3 TRUNK LINES AT 19.2 KBPS EACH ADDITIONAL TRUNK LINE REQUIRES 446 BYTES
2 TRUNK X.25 VCS AT 19.2 KBPS EACH ADDITIONAL TRUNK VC REQUIRES 286 BYTES

THE OPTIONAL CNS UTILITIES AND MODULES SELECTED FOR THIS SYSTEM ARE
STAR - SITE TRUNK ANALYSIS ROUTINE
FOR INFORMATION ON RIL, SEE THE NSS ENVIRONMENT PAGE.

THE ESTIMATED STORAGE REQUIREMENTS FOR CNS IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
41824	3306	73274	BASIC CNS
8856	568	-	CNS TRUNKING OVER X.25 VIRTUAL CIRCUITS
13816	60	-	MODULES AND UTILITIES
-----	-----	-----	-----
64496	3934	73274	TOTALS (BYTES)

MEM SAMPLE ANALYSIS 3

The memory estimation calculated in this example represents the requirements of an NCR Comten 3690 supporting ACF/NCP, MAF, and SRM. ACF/NCP manages 15 BSC lines, each with one cluster and three terminals per cluster. MAF supports five subchannels to BTAM. The distribution of terminals between access methods is as follows: three terminals access BTAM only; six terminals access VTAM only; 36 terminals may switch between BTAM and VTAM. Therefore, a total of 39 terminals may access BTAM; and a total of 42 terminals may access VTAM. The total number of logical devices as seen by access methods is 81. The total number of physical devices managed by NCP is 45. The ratio of logical devices as seen by access methods to physical devices in the network is 81 to 45, resulting in an SRM mapping factor of 1.8. Figure 5-3 illustrates the sample network for this analysis.

This MEM analysis requires the following sections: NODE, NSS, MAF, NCP, and SRM. The complete input file and excerpts from the MEM output are shown for this example.

```
* EXAMS 3.0 MEM ANALYSIS REQUEST PARAMETERS
*****
* THIS EXAMPLE DEMONSTRATES THE MEMORY ESTIMATION MODEL
* FOR A 3600 PROCESSOR SUPPORTING COS2/90 R4, NSS1 R3E.
* ACF/NCP V4.0, MAF4 R1, AND SRM1 R3E
*****
*
*
*#NODE
W TITLE = 'EXAMS 3.0 MEM EXAMPLE #3',
COS VERSION = 90,
COS RELEASE = 4,
SOFTWARE = NSS, MAF, NCP, SRM,
UTILITIES = ALL,
FEATURES = HCSD,
N MIMS = 1,
SITE = MILW,
* ALL UTILITY OPTIONS ARE SPECIFIED
* HCSD SUPPORT
*
*#NSS
SOFTWARE PRODUCT = NSS1,
RELEASE = 3E,
NETRTR APPLS = ILD, DUMP,
N UTIL SUBCHANNELS = 1,
* NETWORK ROUTER APPLICATIONS ARE
* INITIAL LOAD DEVICE AND DUMP
*
*#MAF
SOFTWARE PRODUCT = MAF4,
RELEASE = 1,
N APPLICATIONS = 1,
N BSC LINES = 15,
N LCC BSC CLUSTERS = 15,
N LCC BSC TERM = 39,
N SUBCHANNELS = 5,
N REM NODES = 0,
* BSC LINES
* BSC CLUSTERS
* BSC TERMINALS ACCESSING MAF
*
*#NCP
SOFTWARE PRODUCT = NV40,
RELEASE = 1E,
N BSC LINES = 15,
N BSC CLUSTERS = 15,
N BSC TERM = 45,
* BSC LINES
* BSC CLUSTERS
* BSC TERMINALS MANAGED BY NCP
*
*#SRM
SOFTWARE PRODUCT = SRM1,
RELEASE = 5E,
N ACCESS METHODS = 2,
MAPPING FACTOR = 1.8,
N BSC LINES = 15,
N BSC CLUSTERS = 15,
N BSC TERM = 45,
* BSC LINES
* BSC CLUSTERS
* TOTAL BSC TERMINALS
```

Figure 5-3: Network Configuration for MEM Sample Analysis 3

C O S M E M O R Y E S T I M A T I O N M O D E L

NCR COMTEN 3690 AT MILW

 * 1 IBM *
 * HOST(S) *

THE MEMORY REQUIREMENTS FOR THIS NODE ARE:

----- 15 TERMINAL LINES

EXECUTABLE CODE: 759 THOUSAND BYTES
 CONTROL BLOCKS: 90 THOUSAND BYTES
 ESTIMATED BUFFER POOL: 17 THOUSAND BYTES
 TOTAL SYSTEM: 866 THOUSAND BYTES

THE SOFTWARE PRODUCTS IN THIS NODE ARE:

CDS2/90 R4 - COMMUNICATIONS OPERATING SYSTEM
 NSS1 R3E- NETWORK SUPPORT SERVICES
 MAF4 R1 - MULTIPLE ACCESS FACILITY
 ACF/NV40 R1E- NETWORK CONTROL PROGRAM
 SRM1 R5E- SUBAREA ROUTING MANAGER

THE TOTAL SYSTEM STORAGE IS 846 K BYTES (1K = 1024).
 EACH BUFFER REQUIRES 132 BYTES.

S R M E N V I R O N M E N T (SRM1 R5E)

PRODUCT DESCRIPTION :
 THE SUBAREA ROUTING MANAGER (SRM) PROGRAM PRODUCT OPERATES WITH THE ADVANCED COMMUNICATIONS FUNCTION/NETWORK CONTROL PROGRAM (ACF/NCP) PROGRAM PRODUCT TO PROVIDE SWITCHING CAPABILITIES ALLOWING BINARY SYNCHRONOUS COMMUNICATIONS (BSC) IBM 3270 TYPE DEVICES TO LOG ON TO ANY ONE ACCESS METHOD IN THE NETWORK. SRM PERMITS LOCALLY ATTACHED TERMINALS TO SWITCH BETWEEN ACCESS METHODS LOCATED AT ADJACENT HOST NODES AS WELL AS THOSE ATTACHED TO THE LOCAL NODE. SRM PROVIDES AN ALTERNATIVE TO CROSS-DOMAIN SESSION SUPPORT WITHOUT REQUIRING IBM MULTI-SYSTEM NETWORKING FACILITY (MSNF) INTERVENTION IN THE HOST.

RELEASE FEATURES :
 SRM1 R5E IS FUNCTIONALLY EQUIVALENT TO SRM1 R4E IN ADDITION, SRM1 R5E SUPPORTS EXTENDED NETWORK ADDRESSING (ENA) AND FORCED LINE DEACTIVATION WHEN RUNNING WITH RELEASES OF ACF/NCP THAT SUPPORT THOSE FUNCTIONS. RELEASE 5E IS ALSO COMPATIBLE WITH NON-ENA VERSIONS OF ACF/NCP.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS :

THERE ARE 2 ACCESS METHODS IN THIS SYSTEM.

THE NUMBER OF ACCESS METHODS TO WHICH ANY LINE CAN SWITCH VIA SRM IS 2.0
 THE NUMBER OF ACCESS METHODS TO WHICH ANY PRE-SNA CLUSTER OR SNA PHYSICAL UNIT CAN SWITCH VIA SRM IS 2.0
 MAPPING FACTOR IS THE AVERAGE NUMBER OF ACCESS METHODS TO WHICH ANY TERMINAL OR LOGICAL UNIT CAN SWITCH VIA SRM
 THE USER SPECIFIED VALUE FOR MAPPING FACTOR IS 1.8

THE RESOURCES IN THIS SYSTEM WITH THEIR TABLE/CONTROL BLOCK STORAGE REQUIREMENTS ARE
 15 PRE-SNA AND/OR SNA LINES
 EACH ADDITIONAL LINE ACCESSING 2.0 ACCESS METHODS REQUIRES 52 BYTES
 15 PRE-SNA CLUSTERS (CU) AND/OR SNA PHYSICAL UNITS (PU)
 EACH ADDITIONAL CU OR PU ACCESSING 2.0 ACCESS METHODS REQUIRES 60 BYTES
 45 PRE-SNA TERMINALS (TERM) AND/OR SNA LOGICAL UNITS (LU)
 EACH ADDITIONAL TERM OR LU ACCESSING 1.8 ACCESS METHODS REQUIRES 62 BYTES

PLEASE REFER TO NCP ENVIRONMENT PAGE FOR ITS STORAGE REQUIREMENTS.

THE ESTIMATED STORAGE REQUIREMENTS FOR SRM IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
58344	1535	-	BASIC
-	4488	-	PRE-SNA RESOURCES
-	0	-	SNA RESOURCES
-----	-----	-----	-----
58344	6023	-	TOTALS (BYTES)

C O S M E M O R Y E S T I M A T I O N M O D E L

NCR COMTEN 3690 AT PHNX

 * 1 IBM *
 * HOST(S) *

THE MEMORY REQUIREMENTS FOR THIS NODE ARE:
 EXECUTABLE CODE: 910 THOUSAND BYTES
 CONTROL BLOCKS: 224 THOUSAND BYTES
 ESTIMATED BUFFER POOL: 22 THOUSAND BYTES
 TOTAL SYSTEM: 1156 THOUSAND BYTES

THE SOFTWARE PRODUCTS IN THIS NODE ARE:

COS2/56	R4 - COMMUNICATIONS OPERATING SYSTEM	-----	1 X.25 LINKS
NSS1	R3E - NETWORK SUPPORT SERVICES		
AC/NV40	R1E - NETWORK CONTROL PROGRAM		
X.25-1	R6E - INTERFACE TO PUBLIC DATA NETWORKS		
NT03	R1E - NETWORK TERMINAL OPTION		

THE TOTAL SYSTEM STORAGE IS 1129 K BYTES (1K = 1024).
 EACH BUFFER REQUIRES 112 BYTES.

X . 2 5 E N V I R O N M E N T (X.25-1 R6E)

PRODUCT DESCRIPTION:
 THE X.25 INTERFACE TO PUBLIC DATA NETWORKS PROGRAM PRODUCT IS A SERIES OF MODULAR PROGRAMS THAT ALLOW 3600 COMMUNICATIONS PROCESSORS TO ACT AS PACKET MODE DATA TERMINAL EQUIPMENT (DTE) WHEN CONNECTED TO PUBLIC DATA NETWORKS. THE INTERFACE CONFORMS TO THE 1976 CCITT RECOMMENDATION X.25. THE INTERFACE SUPPORTS A HIGH LEVEL DATA LINK CONTROL (HDLC) INTERFACE TO PUBLIC DATA NETWORKS.

RELEASE FEATURES:
 X.25-1 R6E PERFORMS THE SAME FUNCTIONS AS R5E WITH THE ADDITION OF THE NCP PACKET SWITCHING INTERFACE (NPSI). NPSI CONSISTS OF EIGHT FEATURES: PSHC, PCNE, BNN-QLLC, INN-QLLC, IPAD, TPAD, GATE, AND DATE.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS:

THE X.25 PUBLIC DATA NETWORK ADMINISTRATIONS TO WHICH THE 3600 PROCESSOR IS ATTACHED ARE
 TELENET

THE X25U UTILITY IS RECOMMENDED FOR ALL SYSTEMS AND IS INCLUDED IN THE STORAGE FOR THIS SYSTEM.

THERE ARE 1 PHYSICAL LINKS IN THIS SYSTEM. EACH ADDITIONAL LINK REQUIRES CONTROL BLOCKS OF 1058 BYTES

THERE ARE 100 VIRTUAL CIRCUITS. 50 ARE PERMANENTLY CONNECTED OF THE 50 SWITCHED VIRTUAL CIRCUITS. 20 CAN BE CONCURRENTLY ACTIVE (LOGGED ON)

THE VIRTUAL CIRCUITS (VC) WITH THEIR PACKET ADAPTER TYPE OR MODULE, AND CONTROL BLOCK STORAGE REQUIREMENTS ARE
 100 PA2 (NCP START/STOP PACKET ADAPTER) VCS EACH ADDITIONAL PERMANENT VC REQUIRES 488 BYTES

THE ESTIMATED STORAGE REQUIREMENTS FOR X.25 IN THIS SYSTEM ARE			
EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
30808	408	-	BASIC
30640	-	-	X25 UTILITY
576	648	-	ADMINISTRATIONS
31984	1058	-	LINKS
11760	44404	2441	PA2 VIRTUAL CIRCUITS
-----	-----	-----	-----
105768	46518	2441	TOTALS (BYTES)

N T O E N V I R O N M E N T (N T O 3 R I E)

PRODUCT DESCRIPTION :
THE NETWORK TERMINAL OPTION (NTO) PROGRAM PRODUCT OPERATES WITH THE ADVANCED COMMUNICATIONS FUNCTION/NETWORK CONTROL PROGRAM (ACF/NCP) PROGRAM PRODUCT TO ALLOW SELECTED PRE-SNA DEVICES TO APPEAR TO THE HOST ACCESS METHODS AS SNA DEVICES. NTO PROVIDES THE COMMUNICATION SUPPORT REQUIRED FOR THESE DEVICES TO ESTABLISH SINGLE OR CROSS DOMAIN SESSIONS WITH ACF/VTAM ALLOWING THEM TO SHARE NETWORK RESOURCES WITH EXISTING SNA DEVICES. NTO PERFORMS THE NECESSARY PROTOCOL TRANSLATION TO ALLOW HOST APPLICATION PROGRAMS TO INTERFACE THE SELECTED PRE-SNA DEVICES VIA THE RECORD MODE INTERFACE OF VTAM R2 AS THOUGH THEY WERE SNA 3767 TERMINALS.

RELEASE FEATURES :
NTO2 RIE EXTENDS THE SUPPORT CAPABILITIES OF THE PREVIOUS VERSION TO INCLUDE SUPPORT FOR THE IMPROVED NCP TRUNKING AVAILABLE WITH ACF/NCP 3. THE PRE-SNA DEVICES SUPPORTED BY NTO2 RIE INCLUDE IBM 2740, 2741, 3101, 3767, AND 3780 COMMUNICATION TERMINALS, 1750 AND 3750 PRIVATE AUTOMATIC BRANCH EXCHANGE (PABX) SYSTEMS, WESTERN UNION TELETYPE-WRITER TERMINAL (TWX) MODEL 33/35, AND WORLD TRADE TELETYPEWRITER TERMINALS (WTWTT).

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS :

THERE ARE 100 NTO LINE(S), EACH ADDITIONAL ONE REQUIRES CONTROL BLOCKS OF 114 BYTES,
AND 100 NTO DEVICE(S), EACH ADDITIONAL ONE REQUIRES CONTRL BLOCKS OF 388 BYTES.

PLEASE REFER TO NCP ENVIRONMENT PAGE FOR ITS STORAGE REQUIREMENTS.

THE ESTIMATED STORAGE REQUIREMENTS FOR NTO IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	BASIC NTO
55168	50760	-	-
-----			TOTALS (BYTES)
55168	50760	-	-

MEM SAMPLE ANALYSIS 5

The memory estimation calculated in this example represents the requirements of an NCR Comten 3690 supporting EP4 R5. The SDA2 and SS1 emulators are present. There are 50 BSC lines under SDA2 control, 80 start/stop lines under SS1 control using A-MIMs, and 20 start/stop lines under SS1 control using DLC-MIMs. There are 20 TILS lines among the 80 start/stop SS1 A-MIM lines. There are 185 subchannels supported by the emulators, with the following distribution of subchannels among line types: a) one subchannel for each of the 50 BSC lines under SDA2; b) one subchannel for each of the 60 SS1 A-MIM lines not using TILS; c) one subchannel for each of the 20 SS1 DLC-MIM lines; and d) 55 subchannels available for the 20 SS1 A-MIM lines using TILS. Figure 5-5 illustrates the sample network for this analysis.

This MEM analysis requires the following sections: NODE, EP, and NSS. The complete input file and excerpts from the MEM output report are shown for this example.

```
* EXAMS 3.0 MEM ANALYSIS REQUEST PARAMETERS
*****
* THIS EXAMPLE DEMONSTRATES THE MEMORY ESTIMATION MODEL
* FOR A 5620 PROCESSOR SUPPORTING COS2/90 R4, NSS1 R3E,
* AND EP4 R5E
*****
*
*
#NODE
W TITLE = 'EXAMS 3.0 MEM EXAMPLE #5'.
COS VERSION = 90.
COS RELEASE = 4.
SOFTWARE = EP, NSS.
FEATURES = HCSD, * HCASD SUPPORT
N MIMS = 11.
N DLC MIMS = 2. * TOTAL LINES ATTACHED TO DLC MIMS
N DLC MIM LINES = 20. * TILS LINES
N TILS LINES = 20.
SITE = WNPG.
*
*
#EP
SOFTWARE PRODUCT = EP4.
RELEASE = 5E.
EMULATORS = SDA2, SS1.
N SS1D LINES = 20. * SS1 LINES ON DLC MIMS
N SS1A DED LINES = 60. * SS1 DEDICATED LINES ON A-MIMS
N SS1A TILS LINES = 20. * SS1 TILS LINES ON A-MIMS
N SS1 TILS POOL = 20. * SS1 DUMMY LINES AVAILABLE FOR TILS
N SUBCHANNELS = 185.
*
*
#NSS
SOFTWARE PRODUCT = NSS1.
RELEASE = 3E.
NETRTR APPLS = CONS. * NETWORK ROUTER APPLICATION IS CONSOLE
N UTIL SUBCHANNELS = 1.
```

Figure 5-5: Network Configuration for MEM Sample Analysis 5

C O S M E M O R Y E S T I M A T I O N M O D E L

NCR COMTEN 3690 AT WNPG

THE MEMORY REQUIREMENTS FOR THIS NODE ARE: ----- 100 TERMINAL LINES

EXECUTABLE CODE: 400 THOUSAND BYTES
 CONTROL BLOCKS: 179 THOUSAND BYTES
 ESTIMATED BUFFER POOL: 34 THOUSAND BYTES
 TOTAL SYSTEM: 613 THOUSAND BYTES

THE SOFTWARE PRODUCTS IN THIS NODE ARE:

CDS2/90 R4 - COMMUNICATIONS OPERATING SYSTEM
 EP4 R5E - EMULATION PROCESSING
 NSS1 R3E - NETWORK SUPPORT SERVICES

THE TOTAL SYSTEM STORAGE IS 599 K BYTES (1K = 1024).
 EACH BUFFER REQUIRES 128 BYTES.

E P E N V I R O N M E N T (EP4 R5E)

PRODUCT DESCRIPTION :
 EMULATION PROCESSING (EP) ALLOWS AN NCR COMTEN 3600 TO FUNCTION AS AN IBM 270X TRANSMISSION CONTROL UNIT OR AS AN IBM 370X COMMUNICATIONS CONTROLLER OPERATING IN EMULATION MODE. EP CAN SUPPORT A VARIETY OF START-STOP AND BSYNCHRONOUS DEVICES, MULTIPLE HOSTS, AND SEVERAL LINE SWITCHING TECHNIQUES.

RELEASE FEATURES :
 EP4 R5E IS FUNCTIONALLY EQUIVALENT TO EP4 R5 EXCEPT THAT ALL START/STOP EMULATORS (EXCEPT WTTY) ARE EITHER REPLACED BY START STOP 1 (SS1) OR DISCONTINUED. SS1 SUPPORTS THE A-MIM AND BOTH LOCAL AND REMOTE CIRCUITS FOR TILS, ABRD, AND MPAD.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS :

THE EMULATORS PRESENT ARE
 SS1 SDA2

THE EMULATION MODULES AND UTILITIES PRESENT ARE
 SWAP - SWAP EMULATION LINES

THE EMULATION LINES AND SUBLINES AND THEIR CONTROL BLOCK STORAGE REQUIREMENTS ARE
 20 SS1D (DLC-MIM) LINES. EACH ADDITIONAL SS1D LINE REQUIRES 732 BYTES.
 60 SS1A (AMIM) DEDICATED LINES. EACH ADDITIONAL SS1A DEDICATED LINE REQUIRES 1254 BYTES.
 20 SS1A (AMIM) TILS LINES. EACH ADDITIONAL SS1A TILS LINE REQUIRES 782 BYTES.
 20 SS1 TILS POOL DUMMY LINES. EACH ADDITIONAL SS1 POOL DUMMY LINE REQUIRES 472 BYTES.

THE ESTIMATED STORAGE REQUIREMENTS FOR EP IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
49384	122058	23458	SS1 EMULATOR
23616	0	308	SDA2 (BSC) EMULATOR
904	0	-	UTILITIES
73904	122058	23766	TOTALS (BYTES)

MEM SAMPLE ANALYSIS 6

The memory estimation calculated in this example represents the requirements of an NCR Comten 5675 processor supporting COS2/56 R4, ACF/NCP V4.0, CAM3 R3E, MSM R1, CNS3 R3E, and NSS1 R3E. The software components of MVNF are MSM and CAM with HIF 3274, HIF 3271, and HIF CCE. There are 500 local terminals. These 500 terminals may establish 500 sessions with local VTAM applications via HIF 3274 and NCP, 100 sessions with local BTAM applications via HIF 3271, 300 sessions with BSC line attached hosts via HIF CCE, and 300 sessions with applications at remote MSM nodes and the network router.

```
* EXAMS 3.0 MEM ANALYSIS REQUEST PARAMETERS
*****
* THIS EXAMPLE DEMONSTRATES THE MEMORY ESTIMATION MODEL
* FOR MVNF ON A 5675 PROCESSOR SUPPORTING COS2/56 R4.
* ACF/NCP V4.0, CAM3 R3E, MSM R1, CNS3 R3E, AND NSS1 R3E
*****
*
* @NODE
* W TITLE = 'EXAMS 3.0 MSM SAMPLE DECK',
* COS VERSION = 56,
* COS RELEASE = 4,
* MODEL = 5675,
* SYSTEM BUFFER SIZE = 240,
* SOFTWARE = NCP, CAM, MSM, CNS, NSS,
* MODULES = CHU, CIRW,
* UTILITIES = ALL,
* FEATURES = CSUP, HCSD, LODH,
* N IBM HOSTS = 1,
* N MIMS = 9,
* N 16 LINE COMM BASES = 9,
* N COMM BASE LINES = 113,
* REPORT FORMAT = EXTENDED,
* REPORT OPTIONS = COVER,
*
*
* @NCP
* SOFTWARE PRODUCT = NV40,
* RELEASE = 1E,
* FEATURES = ENA,
* N SUBCHANNELS = 1,
* N SNA LINES = 100,
* N SNA PU = 200,
* N SNA LU = 1000,
*
* * 500 FOR HIF 3274 VIRTUAL RESOURCES
*
*
* @CAM
* SOFTWARE PRODUCT = CAM3,
* RELEASE = 3E,
* TERM SUPPORT = 3274,3767,
* SUBSYSTEMS = DMFNIF, HIF 3274, HIF 3271, HIF CCE, NCA, MCSIA,
* N SUBSYSTEMS = 4,
* N SNA LINES = 100,
* N SNA PU = 100,
* N SNA LU = 500,
* N HIF 3274 VIRTUAL RES = 500,
* N HIF 3271 SUBCHANNELS = 2,
* N HIF 3271 CLUSTERS = 5,
* N HIF 3271 VIRTUAL RES = 100,
* N HIF CCE LINES = 3,
* N HIF CCE CLUSTERS = 10,
* N HIF CCE VIRTUAL RES = 300,
*
* * CAM OWNED LOCAL TERMINALS
* * TO LOCAL NCP
* * TO CHANNEL ATTACHED HOST
* * TO BSC ATTACHED HOST
*
*
*
*
```

Figure 5-6: Network Configuration for MEM Sample Analysis 6

```

#MSM
SOFTWARE PRODUCT = MSM.
RELEASE = 1.
FEATURES = RDBFR.
# HOST APPLICATIONS = 5.          * LOCAL HIF APPLICATIONS
# REMOTE SITES = 2.              * OTHER SITES WITH ACCESS HERE
# REMOTE APPLICATIONS = 1.      * AT ANOTHER MSM NODE
# REMOTE SESSIONS = 300.        * TO ANOTHER MSM NODE
# VIRTUAL DEVICES = 900.        * TO LOCAL HIFS
# USERS = 500.                  * 500 LOCAL USER/TERMINALS
# TERMINALS = 500.              * 500 LOCAL USER/TERMINALS
# SAVED SCREENS = 100.         * FOR RDBFR FEATURE
*
*
#CNS
SOFTWARE PRODUCT = CNS3.
RELEASE = 3E.
MODULES = STAR.
# TRUNKS = 2.
# TRUNK LINES = 5.
*
*
#NSS
SOFTWARE PRODUCT = NSS1.
RELEASE = 3E.
NETRTR APPLS = ILD, DUMP, CONS, LCM.
# UTIL SUBCHANNELS = 1.

```

```

DEPT. OF NETWORK ENGINEERING NCR COMTEN
MEMORY ESTIMATION MODEL FOR EXAMS 3.0 MSM SAMPLE DECK
LIB. SERV. UPDATE LEVEL 89-02

```

```

EXAMS 3.0 MEM PAGE 1
FRI MAR 31 10:07:02 1989
PROPRIETARY DATA

```

C O S M E M O R Y E S T I M A T I O N M O D E L

NCR COMTEN 5675

```

*****
* 1 IBM *****
* HOST(S) *
*****
THE MEMORY REQUIREMENTS FOR THIS NODE ARE:
EXECUTABLE CODE: 1534 THOUSAND BYTES
CONTROL BLOCKS: 1692 THOUSAND BYTES
ESTIMATED BUFFER POOL: 731 THOUSAND BYTES
TOTAL SYSTEM: 3957 THOUSAND BYTES
----- 100 TERMINAL LINES
----- 5 CNS TRUNK LINES

```

```

THE SOFTWARE PRODUCTS IN THIS NODE ARE:
CDS2/56 R4 - COMMUNICATIONS OPERATING SYSTEM
ACF/NV40 R1E - NETWORK CONTROL PROGRAM
CAM3 R3E - COMMUNICATIONS ACCESS METHOD
MSM R1 - MULTI-VENDOR NETWORKING FACILITY
CNS3 R3E - COMMUNICATIONS NETWORKING SYSTEM
NSS1 R3E - NETWORK SUPPORT SERVICES

```

THE TOTAL SYSTEM STORAGE IS 3864 K BYTES (1K = 1024).
EACH BUFFER REQUIRES 284 BYTES.

C A M E N V I R O N M E N T (CAM3 R3E)

PRODUCT DESCRIPTION :
 THE COMMUNICATIONS ACCESS METHOD (CAM) IS A DATA COMMUNICATIONS ACCESS METHOD THAT RESIDES IN THE COMTEN PROCESSOR. THE CAM SOFTWARE PRODUCT ALLOWS THE COMTEN TO FUNCTION AS A HOST NODE IN A COMMUNICATIONS NETWORK. WITH CAM, A PROCESSOR CAN CONTROL AND MANAGE A DATA COMMUNICATIONS SYSTEM, ASSUMING RESPONSIBILITIES NORMALLY PERFORMED BY A CHANNEL ATTACHED HOST PROCESSOR.

RELEASE FEATURES :
 CAM3 R3E SUPPORTS ENA, UTILIZES PATH CONTROL, AND HAS ENHANCED 3270 DEVICE SUPPORT. SUPPORT WAS ADDED FOR MSNF OPTIONS RELATED TO FULL-FUNCTION ER/VR PROTOCOLS. SUPPORT WAS ALSO ADDED FOR REMOTES MORE THAN ONE DEEP.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS :

THE TERMINAL RESOURCES WITH THEIR CAM TABLE/CONTROL BLOCK STORAGE REQUIREMENTS ARE

THE SNA RESOURCES WITH THEIR TABLE/CONTROL BLOCK STORAGE REQUIREMENTS ARE

100 SNA LINES	EACH ADDITIONAL LINE REQUIRES 164 BYTES
100 PHYSICAL UNITS	EACH ADDITIONAL PHYSICAL UNIT REQUIRES 156 BYTES
500 LOGICAL UNITS	EACH ADDITIONAL LOGICAL UNIT REQUIRES 236 BYTES
4 CAM SUBSYSTEMS	EACH ADDITIONAL SUBSYSTEM REQUIRES 172 BYTES
500 HIF 3274 VIRTUAL RESOURCES	EACH ADDITIONAL RESOURCE REQUIRES 416 BYTES
2 HIF 3271 SUBCHANNELS	EACH ADDITIONAL SUBCHANNEL REQUIRES 50 BYTES
5 HIF 3271 VIRTUAL CLUSTERS	EACH ADDITIONAL CLUSTER REQUIRES 212 BYTES
100 HIF 3271 VIRTUAL RESOURCES	EACH ADDITIONAL RESOURCE REQUIRES 452 BYTES
3 HIF CCE LINES	EACH ADDITIONAL CCE LINE REQUIRES 450 BYTES
10 HIF CCE VIRTUAL CLUSTERS	EACH ADDITIONAL CLUSTER REQUIRES 196 BYTES
300 HIF CCE VIRTUAL RESOURCES	EACH ADDITIONAL RESOURCE REQUIRES 196 BYTES

THE TERMINAL TYPES SUPPORTED BY THIS SYSTEM ARE
 3274 - IBM 3270 COMMUNICATIONS TERMINAL
 3267 - IBM 3267 COMMUNICATIONS TERMINAL

THE CAM SUBSYSTEMS SELECTED FOR THIS SYSTEM ARE
 HIF3274 - 3274 HOST INTERFACE
 DMFNIF - DMF NETWORK INTERFACE
 HIF3271 - 3271 HOST INTERFACE
 HIFCCE - CCE HOST INTERFACE
 MCSIA - SYSTEM INFORMATION APPLICATION
 NCA - NETWORK COMMAND APPLICATION

CAMQ ENTRIES FOR RESOURCES = 2240, 320 BYTES PER RESOURCE.
 CAMQ ENTRIES FOR SUBSYSTEMS = 16, 800 BYTES PER SUBSYSTEM.

THE ESTIMATED STORAGE REQUIREMENTS FOR PATH CONTROL ARE REPORTED IN THE PRODUCT STORAGE SUMMARY.
 EACH ADDITIONAL SESSION REQUIRES 284 BYTES (1 BUFFER).

THE ESTIMATED STORAGE REQUIREMENTS FOR CAM IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
203224	454720	-	BASIC CAM
19104	154272	-	NCP RESOURCES
18576	948	-	CAM UNIQUE RESOURCES
62792	373406	27354	VIRTUAL RESOURCES
3096	-	-	MODULES AND UTILITIES
-----	-----	-----	-----
376480	983346	27354	TOTALS (BYTES)

M S M E N V I R O N M E N T (M S M R 1)

PRODUCT DESCRIPTION:
THE MULTIPLE SESSION MANAGER IS A CAM APPLICATION WHICH PROVIDES 3270 DEVICES WITH ACCESS TO MULTIPLE HOST APPLICATIONS ON A VARIETY HOST PROCESSORS. MSM ALLOWS USERS TO QUICK-SWITCH BETWEEN THE APPLICATIONS WHILE STILL MAINTAINING THE SESSIONS.

THE FOLLOWING FEATURES ARE PRESENT:
ROBFR -- SAVE SCREENS FOR SUSPENDED SESSIONS

STORAGE REQUIREMENTS FOR ADDITIONAL RESOURCES:
NUMBER OF APPLICATIONS: 5, EACH ADDITIONAL APPLICATION REQUIRES 148 BYTES.
NUMBER OF VIRTUAL DEVICES: 900, EACH ADDITIONAL VIRTUAL DEVICE REQUIRES 204 BYTES.
NUMBER OF REMOTE APPLICATIONS: 1, EACH ADDITIONAL APPLICATION REQUIRES 164 BYTES.
NUMBER OF REMOTE SESSIONS: 300, EACH ADDITIONAL REMOTE SESSION REQUIRES 172 BYTES.
NUMBER OF TERMINALS: 500, EACH ADDITIONAL TERMINAL REQUIRES 206 BYTES.
NUMBER OF USERS: 500, EACH ADDITIONAL USER REQUIRES 62 BYTES.

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
176080	2014	269413	BASIC MSM
-	236560	-	APPLICATIONS
-	110992	-	TERMINALS
-	31000	-	USERS
-----	-----	-----	-----
176080	380566	269413	TOTALS (BYTES)

V I M E N V I R O N M E N T (VIM1 R2)

PRODUCT DESCRIPTION:
 THE VRX INTERFACE MODULE (VIM) PROGRAM PRODUCT PROVIDES THE COMTEN COMMUNICATIONS PROCESSOR WITH AN INTERFACE TO AN NCR VRX HOST PROCESSOR. VIM ALLOWS LOCAL TERMINALS, AND REMOTE TERMINALS USING ACF/NCP TRUNKS, TO ACCESS VRX HOST APPLICATIONS. IN ADDITION, BY MEANS OF CAM SUBSYSTEMS, VIM PERMITS FILE TRANSFERS BETWEEN NCR AND IBM HOSTS.

RELEASE FEATURES:
 VIM1 RELEASE 2 TOGETHER WITH CAM3 R3E AND ACF/NCP V4.0 MAKE UP ACS R2. ACS R2 ALLOWS AN NCR COMTEN CP TO PHYSICALLY AND LOGICALLY ATTACH TO A NCR V-SERIES 8XXX OR 9800 HOST VIA THE NCR BIT SERIAL LINK.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS:

THE NCR RESOURCES WITH THEIR TABLE/CONTROL BLOCK STORAGE REQUIREMENTS ARE
 3 NCR VRX APPLICATION(S) EACH ADDITIONAL APPLICATION REQUIRES 678 BYTES
 800 NCR ACCEPT TERMINAL(S) EACH ADDITIONAL ACCEPT TERMINAL REQUIRES 572 BYTES
 650 NCR ACQUIRE TERMINAL(S) EACH ADDITIONAL ACQUIRE TERMINAL REQUIRES 308 BYTES

THE ESTIMATED STORAGE REQUIREMENTS FOR VIM IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	BASIC VIM
49936	66126	665280	
49936	66126	665280	TOTALS (BYTES)

D C U E N V I R O N M E N T (DCV2 R1)

PRODUCT DESCRIPTION:
 THE DATA COMMUNICATIONS UTILITY (DCU) IS A COMPONENT OF NCR CP THAT PROVIDES THE PRIMARY I/O AND COMMUNICATIONS INTERFACE BETWEEN NCR TAM OR PRE-TAM HOST APPLICATIONS AND A NETWORK OF NCR ASYNCHRONOUS (TTY), MULTI-POINT ASYNCHRONOUS (MPA), AND NCR DLC (IN-HOUSE AND COMMON CARRIER) DEVICES. DCU V2 RUNNING ON AN NCR COMTEN COMMUNICATIONS PROCESSOR IS THE SUCCESSOR TO THE 721 DCU R7.0 HARDWARE/SOFTWARE PLATFORM.

THE FOLLOWING FEATURES ARE PRESENT:
 NSS -- NETWORK ROUTER INTERFACE

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS:

STORAGE REQUIREMENTS FOR ADDITIONAL RESOURCES:
 NUMBER OF TAM HALF PAIRS (SEE #): 120, EACH ADDITIONAL HALF PAIR REQUIRES 48 BYTES.
 NUMBER OF PAGE MODE TTY DEVICES: 15, EACH ADDITIONAL PAGE MODE TTY DEVICE REQUIRES 882 BYTES.
 NUMBER OF LINE MODE TTY DEVICES: 10, EACH ADDITIONAL LINE MODE TTY DEVICE REQUIRES 842 BYTES.
 NUMBER OF MPA LINES: 8, EACH ADDITIONAL MPA LINE REQUIRES 978 BYTES.
 NUMBER OF MPA POLLABLE DEVICES: 85, EACH ADDITIONAL MPA POLLABLE DEVICE REQUIRES 140 BYTES.
 NUMBER OF MPA DEVICES: 50, EACH ADDITIONAL MPA DEVICE REQUIRES 124 BYTES.
 NUMBER OF DLC LINES: 15, EACH ADDITIONAL DLC LINE REQUIRES 1328 BYTES.
 NUMBER OF DLC STATIONS: 60, EACH ADDITIONAL DLC STATION REQUIRES 260 BYTES.

* EACH LOCAL TAM TO LOCAL DEVICE OR LOCAL STATION SHOULD HAVE TWO HALF PAIRS ADDED TO ITS PER ADDITIONAL RESOURCE COST.

THE ESTIMATED STORAGE REQUIREMENTS FOR DCU IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	BASIC DCU
110240	12384	0	DCU FEATURES
68136	112	0	
26520	21650	7920	TTY
51328	19879	2534	MPA
54960	35724	4752	DLC
311184	89749	11054	TOTALS (BYTES)

N S S E N V I R O N M E N T (NSS2 R1)

PRODUCT DESCRIPTION :

THE NCR NETWORK SUPPORT SERVICES 2 (NSS2) PROVIDES A VARIETY OF NETWORK SERVICES TO THE USERS OF NCR COMTEN COMMUNICATIONS PROCESSORS OPERATING IN AN NCR HOST ENVIRONMENT TO SUPPORT THE TRANSFER OF FILES BETWEEN HOSTS AND CPS. WORKING IN CONJUNCTION WITH COS2 RUNNING IN THE CP NSS2 SUPPORTS THE FOLLOWING CAPABILITIES: LOAD OF LOCAL NCR COMTEN CPS FROM AN NCR BSL-ATTACHED HOST, ONLINE AND OFFLINE MEMORY DUMP FROM NCR COMTEN FEP TO THE HOST, AND PRINT OF MEMORY DUMP AT HOST PRINTER. NSS2 PROGRAM LOAD DEVICE (PLD) FUNCTIONS ENABLE USER TO LOAD A CP WITH OPERATIONAL SOFTWARE INDEPENDENT OF A HOST. MIM AND CP LOADER PROGRAMS CAN ALSO BE RELOADED FROM THE PLD. WHEN THE CONTENTS OF CP MEMORY HAS BEEN DUMPED TO THE PLD, NSS2 CAN SEND THIS DATA TO THE HOST TO BE PRINTED.

RELEASE FEATURES :

NSS2 R1 PROVIDES LOAD AND DUMP SERVICES FOR 3600/5600 COMMUNICATIONS PROCESSORS IN NETWORKS COMPOSED OF NCR COMTEN 3600/5600S AND 7215. IN CONJUNCTION WITH NCR/CP R1, NSS2 CAN PERFORM FILE TRANSFERS TO A 3600/5600 THROUGH A 7215. THIS INCLUDES TRANSFERRING A LOAD FILE TO 3600/5600 DISK.

PRODUCT TOPOLOGY AND STORAGE REQUIREMENTS :

THIS SYSTEM HAS BEEN CONFIGURED TO INCLUDE THE NETWORK ROUTER AND THE FOLLOWING APPLICATIONS

NCR - FOR A BSL-ATTACHED CP TO SUPPORT THE INTERFACE BETWEEN THE CP-BASED NETWORK ROUTER AND THE HOST-BASED NSS UTILITY.

THE ESTIMATED STORAGE REQUIREMENTS FOR NSS IN THIS SYSTEM ARE

EXECUTABLE CODE	CONTROL BLOCKS	BUFFER POOL	
7504	4396	3168	BASIC NSS FUNCTIONS (INCLUDING NETWORK ROUTER)
12832	9	-	FOR OPTIONAL NSS APPLICATIONS
20336	4444	3168	TOTALS (BYTES)

PROPRIETARY DATA

Use requires license from NCR Comten, Inc. or its authorized distributor.

APPENDIX A

GENERATION OPTIONS INCLUDED IN MEM

For simplicity, MEM unconditionally counts some modules of executable code that are actually optional in the system generation procedure. These are items that are normally included in most systems or are recommended to be included.

For each applicable program product, the following table lists the approximate size in bytes of those optional items always included by MEM.

Table A-1: Generation Options Always Included

PRODUCT	ITEM	SIZE
COS2	CUTE	5000
	Console Commands Including:	
	DBFR	400
	FIND	1400
	SYSRST	400
	CIADDR	700
	CIMD	2300
	DALL	1200
	ENABLE	1600
	MFH	1800
	RESET	1100
	SMON	5800
STATUS	1100	
		17800
	Either Cassette or Diskette	5000
EP4	SWAP	900

(Table continues on next page)

Table A-1. Generation Options Always Included (Cont'd)

PRODUCT	ITEM	SIZE
ACF/NCP	System Control Options:	
	LNSTAT	70
	MODE	180
	DVSINIT	550
	SESINIT	1250
	BHSASSC	180
	RCNTRL	420
	RCOND	370
	RECMD	340
	RIMM	310
	BACKUP	1790
	DLRID	120
	ENDCALL	220
		5800
X.25-1	X25U	34100
CAM3	DMF	12300
	CTAF	7600

PROPRIETARY DATA
 Use requires license from NCR Comten, Inc. or its authorized distributor.

APPENDIX B

MEM INPUT FILE SUMMARY

NODE SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@NODE	R			
W TITLE=	O	Title of MEM input file		
SOFTWARE=	R	Node Supported Software	APS, CAF, CAM, CNG, CNS, DCU, DSM, EP, FAM, MAF, MCP, MSM, NCP, NSS, NTO, SEAC, SRM, VIM, X25,	
COS VERSION=	R	COS Version	90, 50, 20, 56	
COS RELEASE=	R	COS Release	1, 3, 4	
MODULES=	O	Supported Modules	CHU, SILS, CIRW, DKIN, MPAD, STAR, RIL, LTU	
UTILITIES=	O	Supported Utilities	ALL, BCST, CBU, DTQC, LMSS, SNA, NCPS, NSWP, DRID, MAFU, MAFB, DMPU, IPLD, SLDN, RILU, PMF, DTYP, DLIO, TRAC, DRC, EDIT, EXEC	
FEATURES=	O	Special Features	ABRD, DIAL, DSKT, CSET, HCSD, CSUP, LODH, RRR	DSKT
SITE=	O	Node Site	Up to 4 Characters	Blank
MODEL=	O	Processor Model	3650, 3670, 3690, 5620, 5655, 5660, 5665, 5675	3690
SYSTEM BUFFER SIZE=	O	Buffer Size	$56 \leq n \leq 248$	Varies
N MIMS=	O	Number of MIMs in Node	$1 \leq n \leq 64$	Varies
N TILS LINES=	O	Number of TILS Lines	$n \geq 0$	0
N SILS LINES=	O	Number of SILS Lines	$n \geq 0$	0
N IBM HOSTS=	O	Number of Attached IBM Hosts	$n \geq 0$	Varies
N NCR HOSTS=	O	Number of Attached NCR Hosts	$n \geq 0$	0

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

NODE SECTION (Cont'd)

KEYWORD	DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
RPQ ADDITIONS=	0 Size in Bytes of RPQ Software Modules	$n \geq 0$	0
REPORT FORMAT=	0 Output Report Format	BRIEF, LETTER, EXTENDED	Extended
REPORT OPTIONS=	0 Output Report Options	ECHO, NO ECHO COVER, NO COVER	ECHO NO COVER
FAULT JRNL SIZE=	0 Size in kilobytes of 5620 Fault Journal	$n \geq 2$	32
CONSOLE JRNL SIZE=	0 Size in kilobytes of 5620 Console Journal	$n \geq 0$	25
N DLC MIMS=	0 Number of DLC MIMS in Node	$n \geq 0$	0
N DLC MIM LINES=	0 Number of DLC MIM Lines in Node	$n \geq 0$	N DLC MIMS
N HLC MIMS=	0 Number of HLC MIMS in Node	$n \geq 0$	0
N HLC MIM LINES=	0 Number of HLC MIM Lines in Node	$n \geq 0$	N HLC MIMS
N 8 LINE COMM BASES=	0 Number of 8 Line Comm Bases in Node	$n \geq 0$	0
N 16 LINE COMM BASES=	0 Number of 16 Line Comm Bases in Node	$n \geq 0$	0
N COMM BASE LINES=	0 Number of Comm Base Lines in Node	$n \geq 0$	
DISPTRC=	0 Size in K Words of Dispatcher Trace Table	$n \geq 0$	1
NUC ERR SIZE=	0 Size in Words of Nucleus Error Trace Table	$n \geq 0$	1024
PHR SIZE=	0 Size in Words of PHR Table	$n \geq 0$	1024
STACKS=	0 Size in Words of Stacks used by C Runtime Support Modules	$n \geq 0$	1024

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

ACF/NCP SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@NCP	R			
SOFTWARE PRODUCT=	R	NCP Version	NCP3, NCV2, NV40, NV42	
RELEASE=	R	NCP Release	1, 1E, 2E	
MODULES=	O	NCP Modules	CHU, SILS	
UTILITIES=	O	NCP Utilities	DTQC, LMSS, SNA, NCPS, NSWP, DRID, PMF	
FEATURES=	O	NCP Features	DYNA, LPDA, BLKH, CSM, MTA, SWLN, SNI NPA, ENA	
N SUBCHANNELS=	O	Number NCP Subchannels	$0 \leq n \leq 8$	1
N SUBAREAS=	O	Total Number of Subareas in the ACF/NCP Network	$3 \leq n \leq 255$	3
N SS LINES=	O	Number of S/S Lines	$0 \leq n \leq 1024$	0
N SS TERM=	O	Number of S/S Terminals	$n \geq 0$	N SS LINES
SS TERM SUPPORT=	O	Start/Stop Term Support	83B3, WTTY, 2740, 2741, 1050, 3335, 2260	2741
N BSC LINES=	O	Number of BSC Lines	$0 \leq n \leq 1024$	Varies
N BSC CLUSTERS=	O	Number of BSC Clusters	$n \geq 0$	N BSC LINES
N BSC TERM=	O	Number of BSC Ter- minals	$n \geq 0$	N BSC CLUSTERS
N SNA LINES=	O	Number of SNA Lines	$0 \leq n \leq 1024$	0
N SNA PU=	O	Number of SNA Phys- ical Units	$n \geq 0$	N SNA LINES
N SNA LU=	O	Number of SNA Logi- cal Units	$n \geq 0$	N SNA PU
N SUBLINES=	O	Number of NCP/CNS Sublines	$n \geq 0$	0
N ACF TRUNKS=	O	N ACF Trunks	$n \geq 0$	0
N ACF TRUNK LINES=	O	Total Number of Physical Lines in all ACF Trunks	$n \geq 0$	N ACF TRUNKS
N X21 SHM LINES=	O	Total Number of X.21 Switched Circuits with Short Hold Mode Feature	$n \geq 0$	0
N MPS SESSION LINES=	O	Total Number of X.21 Switched Circuits to be used as SNA Lines with the Multiple Port Sharing feature.	$n \geq 0$	0

ACF/NCP SECTION (Cont'd)

KEYWORD	DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
N MPS PORT LINES=	0 Number of MPS Port Lines defined for use by the MPS Session Lines.	$n \geq 0$	N MPS SESSION LINES
N MPS SHARED POOLS=	0 Number of MPS Shared Port Pools to be used by the MPS Session Lines.	$n \geq 0$	Varies
INPUT MSG LENGTH=	0 Input Message Size (Bytes)	$n > 0$	30
OUTPUT MSG LENGTH=	0 Output Message Size (Bytes)	$n > 0$	300
MAX RES FOR NPA=	0 Maximum number of resources eligible for NPA collection	$n \geq 0$	Number of Lines + 10
N BSC LPDA LINES=	0 Number of BSC lines using LPDA feature	$n \geq 0$	N BSC LINES
N SNA LPDA LINES=	0 Number of SNA lines using LPDA feature	$n \geq 0$	N SNA LINES
N ADJACENT NETWORKS=	0 Number of networks to which SNI node is attached	$n \geq 0$	1
N GATEWAY NAUS=	0 Pool of Resources defined by networks	$n \geq 0$	4 * N HOST SUBAREAS
N DEST SUBAREAS=	0 Number of Destination Subareas	$n \geq 0$	N HOST SUBAREAS + N ACF TRUNKS
N EXPLICIT ROUTES=	0 Number of ERBs built	$n \geq 0$	4*N DEST SUBAREAS
N HALF SESSIONS=	0 Number of HSCBs built	$n \geq 0$	2*N GATEWAY NAUS
N HOST SUBAREAS=	0 Number of Host Subareas NCP can Communicate with	$n \geq 0$	N SUBAREAS /2

APS SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@APS	R			
SOFTWARE PRODUCT=	R	APS Version	APS	
RELEASE =	R	APS Release	2E	
USER APPLICATIONS=	0	Size in bytes of any User Applica- tions	$n \geq 0$	0
APS BSIZE=	0	Size in kilobytes of the APS Subpool 0	$n \geq 0$	Varies
N APS ESP=	0	Number of APS Event Scheduling Packets	$n \geq 0$	50
N APS DISK UNITS=	0	Number of APS Disk Units	$n \geq 0$	1
N APS TAPE UNITS=	0	Number of APS Tape Units	$n \geq 0$	0

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

CAF SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@CAF	R			
SOFTWARE PRODUCT=	R	CAF Version	CAF1	
RELEASE=	R	CAF Release	1E	
N LOC LINES=	0	Number of Local Lines to CAF De- vices	$0 \leq n \leq 8$	0
N REM LINES=	0	Number of Remote Lines to CAF De- vices	$0 \leq n \leq 8$	0
CAF DEVICES=	0	CAF Devices	MONO, COLR PRNT, CONS, ADDS	

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

CAM SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@CAM	R			
SOFTWARE PRODUCT=	R	CAM Version	CAM3	
RELEASE=	R	CAM Release	2E, 3E	
UTILITIES=	O	CAM Utilities	EDIT, EXEC,	
TERM SUPPORT=	O	CAM Terminal Support	TWX, 2741, 3135, 3271, 3274, 3767, 3780, 7950	
SUBSYSTEMS=	O	Processor Resident Subsystems	DMFNIF, HIF 3272, HIF 3274, HIF 3271, HIF CCE, NCA, MCSIA	
N SUBSYSTEMS=	O	Processor Subsystems plus VRX Applications	$n \geq 0$	Varies
N SS LINES=	O	Number of Start/Stop Lines, Local and Remote	$n \geq 0$	0
N SS TERM=	O	Number of Start/Stop Terminals, Local and Remote	$n \geq 0$	N SS LINES
N BSC LINES=	O	Number of BSC Lines, Local and Remote	$n \geq 0$	Varies
N BSC CLUSTERS=	O	Number of BSC Clusters, Local and Remote	$n \geq 0$	N BSC LINES
N BSC TERM=	O	Number of BSC Terminals, Local and Remote	$n \geq 0$	N BSC CLUSTERS
N SNA LINES=	O	Number of SNA Lines, Local and Remote	$0 \leq n \leq 1024$	0
N SNA PU=	O	Number of SNA Physical Units, Types 1 and 2, Local and Remote	$n \geq 0$	N SNA LINES
N SNA LU=	O	Number of SNA Logical Units, Local and Remote	$n \geq 0$	N SNA PU
N SWITCHED GROUPS=	O	Number of Switched Groups defined to CAM	$n \geq 0$	0
N SWITCHED PATHS=	O	Number of Switched Paths defined to CAM	$n \geq 0$	N SWITCHED GROUPS
N SWITCHED PU=	O	Number of Switched Physical Units defined to CAM	$n \geq 0$	N SWITCHED GROUPS

CAM SECTION (Cont'd)

KEYWORD	DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
N SWITCHED LU=	0 Number of Switched Logical Units defined to CAM	$n \geq 0$	N SWITCHED PU
N VIRTUAL RES=	0 Number of virtual resources specified for use by some CAM Subsystems	$n \geq 0$	0
N ACF TRUNKS=	0 N ACF Trunks Defined to CAM	$n \geq 0$	0
N ACF TRUNK LINES=	0 Total Number of Physical Lines in all ACF Trunks Defined to CAM	$n \geq 0$	N ACF TRUNKS
N CAM EXTERNAL CDRM=	0 Number of External Cross Domain Resource Managers defined to CAM	$n \geq 0$	0
N EXTERNAL CDRSC=	0 Number of Cross Domain Resources defined to CAM	$n \geq 0$	Varies
N DYNAMIC LU=	0 Number of Logical Units in the pool of LUs defined for Dynamic Reconfiguration	$n \geq 0$	0
N EXPLICIT ROUTES=	0 Number of Explicit Routes Defined for CAM and Path Control	$n > N \text{ CAM EXTERNAL CDRM}$	N CAM EXTERNAL CDRM
N VIRTUAL ROUTES ACTIVE=	0 Number of Active Virtual Routes	$n \geq 0$	N EXPLICIT ROUTES
CAM Q=	0 Number of Control Block Queue Elements allocated to CAM	$n \geq 0$	2*(80% CAM resources)
DMF Q=	0 Number of Command Queue Elements Available	$n \geq 0$	20
N HIF 3271 SUBCHANNELS=	0 Number of Subchannels used by 3271 Devices	$n \geq 0$	N HIF 3271 CLUSTERS/32
N HIF 3271 CLUSTERS=	0 Number of 3271 Virtual Clusters	$n \geq 0$	N HIF 3271 VIRTUAL RES/32
N HIF 3271 VIRTUAL RES=	0 Number of 3271 Virtual Devices	$n \geq 0$	N HIF 3271 CLUSTERS
N HIF 3274 PU=	0 Number of 3274 Virtual PUs	$n \geq 0$	N HIF 3274 VIRTUAL RES/32

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

CAM SECTION (Contd)

KEYWORD	DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
N HIF 3274 VIRTUAL RES-	0 Number of 3274 Virtual Devices	$n \geq 0$	N HIF 3274 PU
N HIF CCE LINES-	0 Number of CCE lines	$n \geq 0$	N HIF CCE CLUSTERS/32
N HIF CCE CLUSTERS-	0 Number of CCE Virtual Clusters	$n \geq 0$	N HIF CCE VIRTUAL RES/32
N HIF CCE VIRTUAL RES-	0 Number of CCE Virtual Devices	$n \geq 0$	N HIF CCE CLUSTERS
HIF CCE TRAN SIZE-	0 Maximum message length in bytes	$n \geq 0$	4000
N HIF DSP VIRTUAL RES-	0 Number of HIF DSP Virtual Devices	$n \geq 0$	0

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

CNG SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@CNG	R			
SOFTWARE PRODUCT=	R	CNG Version	CNG	
FEATURES=	O	CNG features	STIX	
RELEASE=	R	CNG Release	1E, 2E	
N GATEWAY CDRM=	O	Number of CNG Cross Domain Resource Managers	$2 \leq n \leq 8$	2
N EXTERNAL CDRM=	O	Number of CNG External Cross Domain Resource Managers	$n \geq N \text{ GATEWAY CDRM}$	Varies
N GATEWAY SUBAREAS=	O	Number of CNG Subareas	$n \geq N \text{ GATEWAY CDRM}$	N GATEWAY CDRM
MAXIMUM SESSIONS=	O	Maximum number of Concurrent Sessions allowed for all CDRMs	$n \geq N \text{ GATEWAY CDRM}$	N GATEWAY CDRM
N OUT REQUESTS=	O	Maximum Number of Outstanding Requests Allowed for all CDRMs	$n \geq N \text{ GATEWAY CDRM}$	N GATEWAY CDRM
N EXTERNAL RES=	O	Number of Resources defined outside of a given network to which a Resource within the given network wants to Initiate Access	$n \geq 0$	Varies
N LOCAL ALIASES=	O	Number of Resources given an alias	$n \geq 0$	0
N GCOS NAMES=	O	Number of COS name translations	$n \geq 0$	0
N DESTINATION SUBAREAS=	O	Number of destination subareas	$n \geq 0$	N GATEWAY CDRM
N EXPLICIT ROUTES=	O	Number of explicit routes	$n \geq 0$	N GATEWAY CDRM
N VIRTUAL ROUTES ACTIVE=	O	Number of active virtual routes	$n \geq 0$	N EXPLICIT ROUTES

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

CNS SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@CNS	R			
SOFTWARE PRODUCT=	R	CNS Version	CNS3	
RELEASE=	R	CNS Release	1E, 3E	
MODULES=	O	CNS Modules	STAR	
UTILITIES=	O	CNS Utilities	DMPU	
N TRUNKS=	O	Number of Logical Trunks	n > 0	1
N TRUNK LINES=	O	Number of Trunk Lines	n > 0	N TRUNKS
N CNS3 TRUNK VC=	O	Number of X.25 Virtual Circuits used as Trunk Lines	n ≥ 0	0
N X21 TRUNK SC=	O	Total number of X.21 Switched Circuits used as Trunk Lines	n ≥ 0	0
TRUNK LINE SPEED=	O	Trunk Line Speed (KBPS)	x.x > 0	9.6
N DMP INN SUBLINES=	O	Number of CNS sublines controlled by DMP	n ≥ 0	0

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

DCU SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@DCU	R			
SOFTWARE PRODUCT=	R	DCU Version	DCV2	
RELEASE=	R	DCU Release	1	
FEATURES=	0	DCU Features	NSS	
N NON-TAM PARTITIONS=	0	Number of Non-TAM Host Partitions	$n \geq 0$	0
N TAM PARTITIONS=	0	Number of TAM Host Partitions	$n \geq 0$	Varies
N TAM HALF PAIRS=	0	Number of Half Pairs of TAM Sessions	$n \geq 0$	See Section 3
N PAGE MODE TTY LINES=	0	Number of TTY lines with Page Mode Devices	$n \geq 0$	0
N LINE MODE TTY LINES=	0	Number of TTY lines with Line Mode Devices	$n \geq 0$	0
N MPA LINES=	0	Number of Local MPA Lines	$n \geq 0$	Varies
N MPA POLLED DEVICES=	0	Number of Polled Devices attached to MPA lines	$n \geq 0$	N MPA LINES
N MPA DEVICES=	0	Number of MPA Devices attached to MPA Controllers	$n \geq 0$	0
N DLC LINES=	0	Number of DLC Lines	$n \geq 0$	N DLC STATIONS/ 64
N DLC STATIONS=	0	Number of DLC stations attached DLC lines	$n \geq 0$	N DLC LINES

PROPRIETARY DATA

Use requires license from NCR Comten, Inc. or its authorized distributor.

DSM SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@DSM	R			
SOFTWARE PRODUCT=	R	DSM Version	DSM1	
RELEASE=	R	DSM Release	1	
FEATURES=	0	DSM Features	DYCN	
N DEVICES=	0	Number of devices using DSM	$n \geq 0$	1
N VCS=	0	Number of sessions DSM will support	$n \geq 0$	N DEVICES
N ACQUIRE GROUPS=	0	Number of groups of devices to be acquired	$n \geq 0$	Varies
N ACQUIRE DEVICES=	0	Number of devices to be acquired	$n \geq 0$	N ACQUIRE GROUPS
N ACCESS GROUPS=	0	Number of groups of devices w/ permission to login	$n \geq 0$	Varies
N ACCESS DEVICES=	0	Number of devices for which login is allowed/denied	$n \geq 0$	N ACCESS GROUPS
N LOGINS=	0	Number of logins defined	$n \geq 0$	1
N DESTINATIONS=	0	Number of destinations available for logins	$n \geq 0$	N LOGINS
N EXPLICIT DEVICE GROUPS=	0	Number of groups of devices w/access to a destination	$n \geq 0$	Varies
N EXPLICIT DEVICES=	0	Number of devices w/access to a destination	$n \geq 0$	Varies
N DEVICE DESCRIPTIONS=	0	Number of device descriptions to access a destination	$n \geq 0$	N DESTINATIONS-N EXPLICIT DEVICE GROUPS
N PRINTERS=	0	Number of printers w/access to DSM	$n \geq 0$	0
FREEMEM=	0	Number of 1K bytes reserved for dynamic configuration	$n \geq 0$	Varies

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

EP SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@EP	R			
SOFTWARE PRODUCT=	R	Emulation Version	EP4	
RELEASE=	R	Emulation Release	5E	
EMULATORS=	O	Supported Emulators	WTTY, SS1, SDA2, SDS3, MLA	SDA2
UTILITIES=	O	Emulation Utilities	BCST, DRC	
MODULES=	O	Emulation Modules	MPAD	
N WTTY LINES=	O	Number of Start/ Stop Lines to a Local Host	$0 \leq n \leq 1024$	0
N SS1D LINES=	O	Number of SS1 Lines to a Local Host on DLC-MIMs	$0 \leq n \leq 1024$	0
N SS1A DED LINES=	O	Number of SS1 Dedi- cated (Non-TILS) Lines to a Local Host using A-MIM	$0 \leq n \leq 1024$	0
N SS1A TILS LINES=	O	Number of SS1 TILS Lines to a Local Host on A-MIMS	$0 \leq n \leq 1024$	0
N SS1 TILS POOL=	O	Number of SS1 Dummies Available for TILS	$0 \leq n \leq 1024$	N SS1A TILS LINES
N SS1 SUBLINES=	O	Number of SS1 Sub- lines	$0 \leq n \leq 1024$	0
N SS1D LINES TO TRK=	O	Number of SS1 Lines to Remote Host on DLC-MIM	$0 \leq n \leq 1024$	0
N SS1A LINES TO TRK=	O	Number of SS1 Lines to Remote Host on A-MIM	$0 \leq n \leq 1024$	0
SS1 PACING=	O	Pacing Parameters for SS1	$0 < n_1, n_1 \leq n_2$	1,3
N SDA2 LINES=	O	Number of SDA2 Lines to Local Host	$0 \leq n \leq 1024$	Varies
N SDA2 SUBLINES=	O	Number of SDA2 Sub- lines to Local Host	$0 \leq n \leq 1024$	0
N BSWX LINES=	O	Number of BSWX Lines to Remote Host	$0 \leq n \leq 1024$	0
N BSWX SUBLINES=	O	Number of BSWX Sub- lines to Remote Host	$0 \leq n \leq 1024$	N BSWX LINES
N MLA LINES=	O	Number of MLA Lines	$0 \leq n \leq 1024$	0
N MLA SUBLINES=	O	Number of MLA Sub- lines	$0 \leq n \leq 1024$	N MLA LINES

EP SECTION (Cont'd)

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
MLA COUNT=	0	MLA Outstanding Block Count	$1 \leq n \leq 15$	3
N SUBCHANNELS=	0	Number of Emulation Subchannels	$0 \leq n \leq 1024$	Varies
N LINES USING MSLA=	0	Number of Lines or Sublines with MSLA Feature	$n \geq 0$	0
N LINES USING BCST=	0	Number of Lines or Sublines using SDA5 Broadcast	$n \geq 0$	0
INPUT MSG LENGTH=	0	Input Message Size (Bytes)	$n \geq 0$	30
OUTPUT MSG LENGTH=	0	Output Message Size (Bytes)	$n \geq 0$	300
BLOCK LENGTH=	0	Avg Size of Batch Blocks	$n \geq 0$	400

PROPRIETARY DATA

Use requires license from NCR Comten, Inc. or its authorized distributor.

FAM SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@FAM	R			
SOFTWARE PRODUCT=	R	FAM Version	FAM	
RELEASE=	R	FAM Release	1E	

NE-NJ41-302-A

B-24

MEM PARAMETERS

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

MAF SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@MAF	R			
SOFTWARE PRODUCT=	R	MAF Version	MAF3, RHO	
RELEASE=	R	MAF Release	1E, 3E	
UTILITIES=	O	MAF Utilities	MAFU, MAFB	
N BSC LINES=	O	Number of Local BSC Lines	$0 \leq n \leq 1024$	Varies
N LOC BSC CLUSTERS=	O	Number of Local BSC Clusters	$n \geq 0$	N BSC LINES
N LOC BSC TERM=	O	Number of Local BSC Terminals and Polled Printers	$n \geq 0$	N LOC BSC CLUSTERS
N REM BSC CLUSTERS=	O	Number of Remote BSC Clusters	$n \geq 0$	0
N REM BSC TERM=	O	Number of Remote BSC Terminals and Polled Printers	$n \geq 0$	N REM BSC CLUSTERS
N SNA LINES=	O	Number of Local SNA Lines	$0 \leq n \leq 1024$	0
N LOC SNA PU=	O	Number of Local SNA Physical Units	$n \geq 0$	N SNA LINES
N LOC SNA LU=	O	Number of Local SNA Logical Units	$n \geq 0$	N LOC SNA PU
N REM SNA PU=	O	Number of Remote SNA Physical Units	$n \geq 0$	0
N REM SNA LU=	O	Number of Remote SNA Logical Units	$n \geq 0$	N REM SNA PU
N REM NODES=	O	Number of Remote MAF Nodes	$n \geq 0$	0
N SUBLINES=	O	Number of MAF/CNS Sublines	$n \geq 0$	N REM NODES
N SUBCHANNELS=	O	Total Number of MAF Subchannels at this Node	$n \geq 0$	1
N RHO SUBCHANNELS=	O	Number of pseudo Subchannels	$n \geq 0$	1
MAX TRAN=	O	Maximum number of Characters Accepted	$n \geq 1000$	4000
N APPLICATIONS=	O	Total Number of MAF Applications in this Network	$n \geq 0$	1
AVG SUB PER CU=	O	Average Number of MAF Subchannels accessed per MAF Control Unit	$n \geq 0$	Varies

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

MCP SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@MCP	R			
SOFTWARE PRODUCT=	R	MCP Version	MCP3	
RELEASE=	R	MCP Release	1E	
N SS LINES=	0	Number of S/S Lines	$n \geq 0$	0
N SS TERM=	0	Number of S/S Terminals	$n \geq 0$	N SS LINES
N BSC LINES=	0	Number of BSC Lines	$n \geq 0$	0
N BSC TERM=	0	Number of BSC Terminals	$n \geq 0$	N BSC LINES
N SNA LINES=	0	Number of SNA Lines	$n \geq 0$	0
N SNA LU=	0	Number of SNA Logical Units	$n \geq 0$	N SNA LINES
INPUT MSG LENGTH=	0	Average Input Message Length in Bytes for MCP Traffic	$n \geq 0$	30
OUTPUT MSG LENGTH=	0	Average Output Message Length in Bytes for MCP Traffic	$n \geq 0$	300
N MCP APPL=	0	Number of Applications Utilizing MCP	$n \geq 0$	1
N MSG HANDLERS=	0	Total Number of MCP Message Handlers	$n \geq 0$	4
N MSG KEYS=	0	Total Number of MCP Message Keys	$n \geq 0$	0
N MSG STATEMENTS=	0	Total Number of MCP Message Processor Statements	$n \geq 0$	360
N MSNF DEVICE TYPES=	0	Number of MCP Device Types with Dynamic Logon Capability	$0 \leq n \leq 6$	0

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

MSM SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@MSM	R			
SOFTWARE PRODUCT=	R	MSM Version	MSM	
RELEASE=	R	MSM Release	1	
FEATURES=	0	MSM Features	RDBFR	
N HOST APPLICATIONS=	0	Number of Local Host Applications	n≥0	1
N REMOTE SITES=	0	Number of Remote Sites	n≥0	0
N REMOTE APPLICATIONS=	0	Number of Remote Applications	n≥0	Varies
N REMOTE SESSIONS=	0	Number of Remote Sessions	n≥0	N REMOTE APPLICATIONS
N VIRTUAL DEVICES=	0	Number of Local Host Application Sessions	n≥0	N HOST APPLICATIONS
N TERMINALS=	0	Number of Local Terminals	n≥0	1
N PRINTERS=	0	Number of Local Printers	n≥0	0
N USERS=	0	Number of User IDs	n≥0	N TERMINALS + N MSNF TERMINALS
N MSNF TERMINALS=	0	Number of Cross- Domain Terminals	n≥0	0
N SAVED SCREENS=	0	Number of Saved Screens	n≥0	Varies

NE-NJ41-302-A

B-30

MEM PARAMETERS

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

NSS SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@NSS	R			
SOFTWARE PRODUCT=	R	NSS Version	NSS1, NSS2	
RELEASE=	R	NSS Release	1E, 2E, 3E	
NETRTR APPLS=	O	Network Router Applications	ILD, DUMP, RIL CONS, LCM, CAF NCR	
N UTIL SUBCHANNELS=	O	Number of Utility Subchannels	n ≥ 0	0
N SUBLINES=	O	Number of Network Router Sublines	n ≥ 0	0

NE-NJ41-302-A

B-32

MEM PARAMETERS

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

NTO SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@NTO	R			
SOFTWARE PRODUCT=	R	NTO Version	NT02, NT03	
RELEASE=	R	NTO Release	1E, 2E	
N SS LINES=	0	Number of Start/ Stop Lines using NTO	$n \geq 0$	1
N SS TERM=	0	Number of Start/ Stop Terminals using NTO	$n \geq 0$	N SS LINES

NE-NJ41-302-A

B-34

MEM PARAMETERS

PROPRIETARY DATA

Use requires license from NCR Comten, Inc. or its authorized distributor.

SEAC SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@SEAC	R			
SOFTWARE PRODUCT=	R	SEAC Version	SEA3	
RELEASE=	R	SEAC Release	1E	
N LINES=	0	Number of Lines or Remote Lines using SEAC	$n \geq 0$	1
N RECORD SUBLINES=	0	Number of SEAC/CNS Sublines	$n \geq 0$	0
N LINES USING ST=	0	Number of SEAC Lines or Remote Lines using Statis- tics Function	$n \geq 0$	N LINES

NE-NJ41-302-A

B-36

MEM PARAMETERS

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

SRM SECTION

KEYWORD	DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@SRM	R		
SOFTWARE PRODUCT=	R SRM Version	SRM1	
RELEASE=	R SRM Release	4E, 5E	
N ACCESS METHODS=	0 Number of Access Methods	$n \geq 0$	2
MAPPING FACTOR=	0 The Average Number of Access Methods per Terminal	$x.x \geq 1.0$	1.5
N BSC LINES=	0 Number of BSC Lines	$n \geq 0$	Varies
N SNA LINES=	0 Number of SNA Lines	$n \geq 0$	0
N BSC CLUSTERS=	0 Number of BSC Clusters	$n \geq 0$	N BSC LINES
N SNA PU=	0 Number of SNA Physical Units	$n \geq 0$	N SNA LINES
N BSC TERM=	0 Number of BSC Terminals	$n \geq 0$	N BSC CLUSTERS
N SNA LU=	0 Number of SNA Logical Units	$n \geq 0$	N SNA PU
N BSC PRINTERS=	0 Number of BSC Printers	$n \geq 0$	0
N SNA PRINTERS=	0 Number of SNA Printers	$n \geq 0$	0

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

VIM SECTION

KEYWORD		DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@VIM	R			
SOFTWARE PRODUCT=	R	VIM Version	VIM1	
RELEASE=	R	VIM Release	1E	
N TERMINALS=	0	Number of Terminals with Access to any NCR Applications	$n \geq 0$	0
N ACCEPT TERMINALS=	0	Number of Terminals in CAM Accept-mode	$n \geq 0$	0
N ACQUIRE TERMINALS=	0	Number of Terminals in CAM Acquire-mode	$n \geq 0$	0
N NCR APPLS=	0	Number of NCR Applications	$n \geq 0$	Varies

NE-NJ41-302-A

B-40

MEM PARAMETERS

PROPRIETARY DATA

Use requires license from NCR Comten, Inc. or its authorized distributor.

X.25 SECTION

KEYWORD	DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
@X25	R		
SOFTWARE PRODUCT=	R X.25 Version	X251	
RELEASE=	R X.25 Release	6E	
ADMINISTRATIONS=	O X.25 Administra- tions	DN1, DPAC, DTXP, TELN, TPAC, TYMN, UKPS, CCIT, UNET LPAC, DDX, DDN, OTHR	TELN
FEATURES=	O X.25 Features	FSCN, TTBL	
N LINKS=	O Number of Lines	n ≥ 0	1
N SS PA1 VC=	O Number of S/S Vir- tual Circuits	n ≥ 0	0
N SS PA2 VC=	O Number of S/S Vir- tual Circuits	n ≥ 0	0
N SNA PA3 VC=	O Number of SNA Vir- tual Circuits	n ≥ 0	0
N BSC PA4A VC=	O Number of BSC Vir- tual Circuits	n ≥ 0	Varies
N BSC PA5A VC=	O Number of BSC Vir- tual Circuits	n ≥ 0	0
N BSC PA5D VC=	O Number of BSC Vir- tual Circuits	n ≥ 0	0
N BSC PA5DSP VC=	O Number of BSC Vir- tual Circuits	n ≥ 0	0
N NPSI VC=	O Number of Virtual Circuits using NPSI	n ≥ 0	0
NPSI FEATURES=	O NPSI features	PSHC, PCNE, BQLL, IQLL, IPAD, TPAD, GATE, DATE	
N VCS USING XSWX=	O Number of Virtual Circuits using XSWX	n ≥ 0	0
N SUBLINES=	O Number of XSWX/CNS Sublines	n ≥ 0	0
N TIA1 VC=	O Number of TIA1 Vir- tual Circuits	n ≥ 0	0
N TILS LN USING TIA1=	O Number of TIA1 VC for use by TILS Lines	n ≥ 0	0
N CNS3 TRUNK VC=	O Number of Virtual Circuits used as CNS3 Trunk Lines	n ≥ 0	0
N PERM VC=	O Number of Permanent Virtual Circuits	n ≥ 0	0
N ACT SWX VC=	O Number of Concur- rently Active Switched Virtual Circuits	n ≥ 0	Varies

X.25 SECTION (Cont'd)

KEYWORD	DESCRIPTION	PERMISSIBLE VALUES	DEFAULT
PACKET SIZE=	0 Packet Size (bytes)	0, 128, 256, 1024	1024
WINDOW SIZE=	0 Number of Outstanding Packets	0, 2, 3	2
INPUT MSG LENGTH=	0 Input Message Size (bytes)	$n \geq 0$	30
OUTPUT MSG LENGTH=	0 Output Message Size (bytes)	$n \geq 0$	300
N USER VC=	0 Number of Virtual Circuits Reserved for Users of X.25	$n \geq 0$	0
N AXCS CONNECTIONS=	0 Number of Pairs of Virtual Circuits That AXCS Connects	$n \geq 0$	0
N PA5A TERM=	0 Number of Devices on Virtual Circuits controlled by PA5A	$n \geq 0$	5* N BSC PA5A VC
N PA5D CLUSTERS=	0 Number of Clusters Used by Virtual Circuits Controlled by PA5D	$n \geq 0$	N BSC PA5D VC/10
N PA5D LINES=	0 Number of Lines Used by Virtual Circuits Controlled by PA5D	$n \geq 0$	N PA5D CLUSTERS/10
N PA5DSP CLUSTERS=	0 Number of Clusters Used by Virtual Circuits Controlled by PA5DSP	$n \geq 0$	N BSC PA5DSP VC/10
N PA5DSP LINES=	0 Number of lines Used by Virtual Circuits Controlled by PA5DSP	$n \geq 0$	N PA5DSP CLUSTERS/ 10

APPENDIX C

MEM ERROR MESSAGES

The MEM program generates diagnostic error messages, which are printed on the first page of the output report if errors have been detected in the user's input file. This appendix explains the structure of the messages.

There are three elements in each error message: an identification number, a severity label, and a text explanation. Figures C-1 and C-2 show two sample error messages. The identification number has the form MEM xxyy. The digits xx identify the product input section that is involved, and the digits yy identify the particular error that has been detected. The possible values of xx are listed in Table C-1.

Table C-1: MEM Error Codes

VALUE	DESCRIPTION
1	NODE section - SOFTWARE
2	Generic - may apply to any product section
3	NODE section - other
5	EP
6	NCP
7	MAF
8	X.25
9	CNS
10	SRM
11	SEAC
13	CAF
14	NSS
15	MSM
16	DSM

Table C-1. MEM Error Codes (Cont'd)

VALUE	DESCRIPTION
17	CAM
18	DCU
19	NTO
21	VIM
22	APS
23	MCP
24	FAM
25	CNG

The values of yy usually have different meanings depending on the product, but a few of them are common to all the product sections (i.e., for xx=5-21). Those values are:

- yy = 01 This value indicates that the input section was expected but not found in the MEM input file. This condition occurs when the product is listed under SOFTWARE in the NODE input section, but the product input section is missing or unrecognizable.
- yy = 02 This value indicates that an unrecognized keyword was found in the indicated product section. This condition is usually due to a misspelling or an incorrect abbreviation.

Figure C-1 shows the MEM error message with identification number 1801. The "18" indicates that the message relates to DCU. The "01" indicates that the DCU input section is missing. This means that the user listed "DCU" as one of the options for SOFTWARE in the NODE input section, but failed to parameterize an DCU input section, or possibly, the NSS section was included, but did not begin with @DCU.

The second component of the warning messages is a severity label, either (F) for fatal errors, or (W) for messages which are only warnings. If a fatal error occurs, the MEM program will halt execution after printing all the error messages that are required for the input file. If only warning messages appear, the MEM program will continue executing after printing the messages. These messages indicate conditions in the input file which may be user errors or inconsistencies in parameterization. Most messages are warning messages. Although MEM will produce an output report after printing warning messages, the user will probably need to correct some errors in the input file before using the results.

Figure C-1 is a fatal error message. Since the user has omitted the input section for one of the products that are in the system, MEM cannot complete its calculations and will halt execution.

Figure C-2 is a warning message. The user has specified remote MAF resources, which require CNS to operate, but has not included CNS in the input section. This error will probably have to be corrected before the output report can be used.

The third part of a MEM error message is the text explanation of the error. The explanations are intended to guide the user in correcting the errors in the input file. In some cases, the message indicates an unusual condition that is probably an error but could be deliberate and useful.

For instance, many of the error messages indicate product interdependencies. They state that a product was parameterized without another product, which is needed for operation, and they end with the word REQUIRED. Figure C-2 shows such a message. However, in Figure C-2, the user might have been interested in upgrading from SRM1 R4E to SRM1 R5E, and did not need to know the NCP storage for the system, since it would not change. In this situation, it is reasonable to run MEM with an incomplete input file, parameterizing only the products that are of interest.

```
-----  
MEM 1801 (F):  
THE DCU SECTION IS OMITTED.  
-----
```

Figure C-1: Sample Fatal Error Message

```
-----  
MEM 1003 (W):  
SRM WAS SPECIFIED BUT NCP WAS NOT  
INCLUDED IN THIS SYSTEM:  REQUIRED.  
-----
```

Figure C-2: Sample Warning Error Message

PROPRIETARY DATA
Use requires license from NCR Comten, Inc. or its authorized distributor.

APPENDIX X

INDEX

Note, entries in all caps indicate a major section devoted to that section.

A

ACF/NCP SECTION, 3-19
Adaptive Bandwidth Feature, 3-61
ADMINISTRATIONS =
 X.25 section, 3-130
APS BSIZE =
 APS section, 3-33
APS SECTION, 3-33, B-5
AVG SUB PER CU =
 MAF section, 3-94

B

BLOCK LENGTH =
 EP section, 3-87
BSC lines, 3-78
Buffer calculation, 2-2

C

CAF DEVICES =
 CAF section, 3-43
CAF SECTION, 3-41, B-7
CAM Q =
 CAM section, 3-52
CAM SECTION, 3-45, B-9
CNG SECTION, 3-55, B-13
CNS SECTION, 3-61, B-15
Comments in the input file, 3-2
Conditional parameters, 3-4
CONSOLE JRNL SIZE =
 Node section, 3-14
Control block pool, 3-122
COS RELEASE =
 Node section, 3-7
COS VERSION =
 Node section, 3-7

D

DCU SECTION, 3-65, B-17
Default parameter values, 3-1, 3-2, 3-4
Default values, 1-7
Direct-connect terminal, 3-113, 3-114
DISTR =
 Node section, 3-16
DMF Q =
 CAM section, 3-53
Documentation conventions, 3-3
DSM SECTION, 3-71, B-19

Dynamic storage, 2-2
Dynamic storage requirements, 1-2

E

Emulation line types, 3-77
Emulator groups, 3-76
EMULATORS =
 EP section, 3-82
EP SECTION, 3-75, B-21
EP utilities, 3-81

F

FAM SECTION, 3-39, B-23
Fatal error messages, 4-1
FAULT JRNL SIZE =
 Node section, 3-14
Features, 3-81
FEATURES =
 CNG section, 3-57
 DCU section, 3-67
 DSM section, 3-72
 MSM section, 3-101
 NCP section, 3-22
 Node section, 3-10
 X.25 section, 3-129
FREEMEM =
 DSM section, 3-74

H

HIF CCE TRAN SIZE =
 CAM section, 3-54

I

Independent storage estimation, 2-1
Input file format, 3-1
Input file summary
 APS section, 3-5
 CAF section, 3-7
 CAM section, 3-9
 CNG section, 3-13
 CNS section, 3-15
 DCU section, 3-17
 DSM section, 3-19
 EP section, 3-21
 FAM section, 3-23
 MAF section, 3-25
 MCP section, 3-27
 MSM section, 3-29
 NCP section, 3-3
 NODE section, 3-1
 NSS section, 3-31
 NTO section, 3-33
 SEAC section, 3-35

SRM section, 3-37
VIM section, 3-39
X.25 section, 3-41
INPUT MSG LENGTH =
EP section, 3-86
MCP section, 3-36
NCP section, 3-27
X.25 section, 3-136

L

Logical devices, 3-114

M

MAF SECTION, 3-89, B-25

MAPPING FACTOR =

SRM section, 3-115

MAX RES FOR NPA =

NCP section, 3-28

MAX TRAN =

MAF section, 3-93

MAXIMUM SESSIONS =

CNG section, 3-58

MCP SECTION, 3-35, B-27

MEM

Output report, 1-2

Output report accuracy, 1-7

Output report structure, 1-3

Message Processing and Definition (MPAD), 3-81

MLA COUNT =

EP section, 3-86

MLA lines, 3-78

MODEL =

Node section, 3-11

Modules, 3-81

MODULES =

CNS section, 3-62

EP section, 3-83

NCP section, 3-21

Node section, 3-8

MSM resources, 3-97

MSM SECTION, 3-95, B-29

MSM session parameters, 3-98

Multivalued parameters, 3-4

Multi-Subchannel Line Access (MSLA), 3-81

N

N 16 LINE COMM BASES =

Node section, 3-15

N 8 LINE COMM BASES =

Node section, 3-15

N ACCEPT TERMINALS =

VIM section, 3-120

N ACCESS DEVICES =
DSM section, 3-73

N ACCESS GROUPS =
DSM section, 3-73

N ACCESS METHODS =
SRM section, 3-115

N ACF TRUNK LINES =
CAM section, 3-51
NCP section, 3-26

N ACF TRUNKS =
CAM section, 3-51
NCP section, 3-26

N ACQUIRE TERMINALS =
VIM section, 3-120

N ACQUIRE DEVICES =
DSM section, 3-73

N ACQUIRE GROUPS =
DSM section, 3-73

N ACT SWX VC =
X.25 section, 3-135

N ADJACENT NETWORKS =
NCP section, 3-28

N APPLICATIONS =
MAF section, 3-94

N APS DISK UNITS =
APS section, 3-34

N APS ESP =
APS section, 3-33

N APS TAPE UNITS =
APS section, 3-34

N AXCS CONNECTIONS =
X.25 section, 3-137

N BSC CLUSTERS =
CAM section, 3-49
NCP section, 3-25
SRM section, 3-116

N BSC LINES =
CAM section, 3-49
MAF section, 3-91
MCP section, 3-35
NCP section, 3-25
SRM section, 3-115

N BSC LPDA LINES =
NCP section, 3-28

N BSC PA4A VC =
X.25 section, 3-131

N BSC PA5A VC =
X.25 section, 3-132

N BSC PA5D VC =
X.25 section, 3-132

N BSC PA5DSP VC =
X.25 section, 3-132

N BSC PRINTERS =
 SRM section, 3-116
 N BSC TERM =
 MCP section, 3-36
 NCP section, 3-25
 SRM section, 3-116
 N BSC TERMINALS =
 CAM section, 3-49
 N BSWX LINES =
 EP section, 3-85
 N BSWX SUBLINES =
 EP section, 3-85
 N CAM EXTERNAL CDRM =
 CAM section, 3-51
 N CNS3 TRUNK VC =
 CNS section, 3-63
 X.25 section, 3-135
 N COMM BASE LINES =
 Node section, 3-16
 N DEST SUBAREAS =
 NCP section, 3-29
 N DESTINATION SUBAREAS =
 CNG section, 3-59
 N DESTINATIONS =
 DSM section, 3-73
 N DEVICE DESCRIPTIONS =
 DSM section, 3-74
 N DEVICES =
 DSM section, 3-72
 N DLC LINES =
 DCU section, 3-69
 N DLC MIM LINES =
 Node section, 3-15
 N DLC MIMS =
 Node section, 3-14
 N DLC STATIONS =
 DCU section, 3-69
 N DMP INN SUBLINES =
 CNS section, 3-63
 N DYNAMIC LU =
 CAM section, 3-52
 N EXPLICIT DEVICE GROUPS =
 DSM section, 3-74
 N EXPLICIT DEVICES =
 DSM section, 3-74
 N EXPLICIT ROUTES =
 CAM section, 3-52
 CNG section, 3-60
 NCP section, 3-29
 N EXTERNAL CDRM =
 CNG section, 3-58
 N EXTERNAL CDRSC =
 CAM section, 3-51

N EXTERNAL RES =
 CNG section, 3-59
N GATEWAY CDRM =
 CNG section, 3-57
N GATEWAY NAUS =
 NCP section, 3-29
N GATEWAY SUBAREAS =
 CNG section, 3-58
N GCOS NAMES =
 CNG section, 3-59
N HALF SESSIONS =
 NCP section, 3-29
N HIF 3271 CLUSTERS =
 CAM section, 3-53
N HIF 3271 SUBCHANNELS =
 CAM section, 3-53
N HIF 3271 VIRTUAL RES =
 CAM section, 3-53
N HIF 3274 PU =
 CAM section, 3-53
N HIF 3274 VIRTUAL RES =
 CAM section, 3-53
N HIF CCE CLUSTERS =
 CAM section, 3-54
N HIF CCE LINES =
 CAM section, 3-54
N HIF CCE VIRTUAL RES =
 CAM section, 3-54
N HIF DSP VIRTUAL RES =
 CAM section, 3-54
N HLC MIM LINES =
 Node section, 3-15
N HLC MIMS =
 Node section, 3-15
N HOST APPLICATIONS =
 MSM section, 3-101
N HOST SUBAREAS =
 NCP section, 3-29
N IBM HOSTS =
 Node section, 3-13
N LINE MODE TTY LINES =
 DCU section, 3-68
N LINES USING BCST =
 EP section, 3-86
N LINES USING MSLA =
 EP section, 3-86
N LINES USING ST =
 SEAC section, 3-112
N LINES =
 SEAC section, 3-112
N LINKS =
 X.25 section, 3-131

N LOC BSC CLUSTERS =
MAF section, 3-91
N LOC BSC TERM =
MAF section, 3-91
N LOC LINES =
CAF section, 3-42
N LOC SNA LU =
MAF section, 3-92
N LOC SNA PU =
MAF section, 3-92
N LOCAL ALIASES =
CNG section, 3-59
N LOGINS =
DSM section, 3-73
N MCP APPL =
MCP section, 3-36
N MIMS =
Node section, 3-12
N MLA LINES =
EP section, 3-85
N MLA SUBLINES =
EP section, 3-85
N MPA DEVICES =
DCU section, 3-69
N MPA LINES =
DCU section, 3-68
N MPA POLLED DEVICES =
DCU section, 3-68
N MPS PORT LINES =
NCP section, 3-27
N MPS SESSION LINES =
NCP section, 3-27
N MPS SHARED POOLS =
NCP section, 3-27
N MSG HANDLERS =
MCP section, 3-37
N MSG KEYS =
MCP section, 3-37
N MSG STATEMENTS =
MCP section, 3-37
N MSNF DEVICE TYPES =
MCP section, 3-37
N MSNF TERMINALS =
MSM section, 3-103
N NCR APPLS =
VIM section, 3-120
N NCR HOSTS =
Node section, 3-13
N NON-TAM PARTITIONS =
DCU section, 3-67
N NPSI VC =
X.25 section, 3-133

N OUT REQUESTS =
CNG section, 3-58
N PA5A TERM =
X.25 section, 3-136
N PA5D CLUSTERS =
X.25 section, 3-136
N PA5D LINES =
X.25 section, 3-137
N PA5DSP CLUSTERS =
X.25 section, 3-137
N PA5DSP LINES =
X.25 section, 3-137
N PAGE MODE TTY LINES =
DCU section, 3-68
N PERM VC =
X.25 section, 3-135
N PRINTERS =
DSM section, 3-74
MSM section, 3-102
N RECORD SUBLINES =
SEAC section, 3-112
N REM BSC CLUSTERS =
MAF section, 3-91
N REM BSC TERM =
MAF section, 3-92
N REM LINES =
CAF section, 3-42
N REM NODES =
MAF section, 3-93
N REM SNA LU =
MAF section, 3-92
N REM SNA PU =
MAF section, 3-92
N REMOTE APPLICATIONS =
MSM section, 3-102
N REMOTE SESSIONS =
MSM section, 3-102
N REMOTE SITES =
MSM section, 3-101
N RHO SUBCHANNELS =
MAF section, 3-93
N SAVED SCREENS =
MSM section, 3-103
N SDA2 LINES =
EP section, 3-85
N SDA2 SUBLINES =
EP section, 3-85
N SILS LINES =
Node section, 3-12
N SNA LINES =
CAM section, 3-49
MAF section, 3-92
MCP section, 3-36

NCP section, 3-25
 SRM section, 3-116
 N SNA LPDA LINES =
 NCP section, 3-28
 N SNA LU =
 CAM section, 3-50
 MCP section, 3-36
 NCP section, 3-26
 SRM section, 3-116
 N SNA PA3 VC =
 X.25 section, 3-131
 N SNA PRINTERS =
 SRM section, 3-116
 N SNA PU =
 CAM section, 3-49
 NCP section, 3-26
 SRM section, 3-116
 N SS LINES =
 CAM section, 3-48
 MCP section, 3-35
 NCP section, 3-23
 NTO section, 3-110
 N SS PA1 VC =
 X.25 section, 3-131
 N SS PA2 VC =
 X.25 section, 3-131
 N SS TERM =
 CAM section, 3-49
 MCP section, 3-35
 NCP section, 3-24
 NTO section, 3-110
 N SS1 SUBLINES =
 EP section, 3-84
 N SS1 TILS POOL =
 EP section, 3-84
 N SS1A DED LINES =
 EP section, 3-83
 N SS1A LINES TO TRK =
 EP section, 3-84
 N SS1A TILS LINES =
 EP section, 3-83
 N SS1D LINES TO TRK =
 EP section, 3-84
 N SS1D LINES =
 EP section, 3-83
 N SUBAREAS =
 NCP section, 3-23
 N SUBCHANNELS =
 EP section, 3-86
 MAF section, 3-93
 NCP section, 3-23

N SUBLINES =
 MAF sublines, 3-93
 NCP section, 3-26
 NSS section, 3-107
 X.25 section, 3-134
 N SUBSYSTEMS =
 CAM section, 3-48
 N SWITCHED GROUPS =
 CAM section, 3-50
 N SWITCHED LU =
 CAM section, 3-50
 N SWITCHED PATHS =
 CAM section, 3-50
 N SWITCHED PU =
 CAM section, 3-50
 N TAM HALF PAIRS =
 DCU section, 3-68
 N TAM PARTITIONS =
 DCU section, 3-68
 N TERMINALS =
 MSM section, 3-102
 VIM section, 3-119
 N TIA1 VC =
 X.25 section, 3-134
 N TILS LINES =
 Node section, 3-12
 N TILS LN USING TIA1 =
 X.25 section, 3-134
 N TRUNK LINES =
 CNS section, 3-63
 N TRUNKS =
 CNS section, 3-63
 N USER VC =
 X.25 section, 3-135
 N USERS =
 MSM section, 3-102
 N UTIL SUBCHANNELS =
 NSS section, 3-107
 N VCS USING XSWX =
 X.25 section, 3-134
 N VCS =
 DSM section, 3-72
 N VIRTUAL DEVICES =
 MSM section, 3-102
 N VIRTUAL RES =
 CAM section, 3-51
 N VIRTUAL ROUTES ACTIVE =
 CAM section, 3-52
 CNG section, 3-60
 N WTTY LINES =
 EP section, 3-83
 N X21 SHM LINES =
 NCP section, 3-27

N X21 TRUNK SC =
 CNS section, 3-63
NCP SECTION, 3-19, B-3
NCR CP product set
 DCU section, 3-66
 VIM section, 3-118
NETRTR APPLS =
 NSS section, 3-106
Network planning questions, 1-3
Node and product section correspondence, 3-5
NODE SECTION, 3-5, B-1
NPSI FEATURES =
 X.25 section, 3-133
NSS SECTION, 3-105, B-31
NTO SECTION, 3-109, B-33
NUC ERR SIZE =
 Node section, 3-16

O

Optional parameters, 3-4
OUTPUT MSG LENGTH =
 EP section, 3-86
 MCP section, 3-36
 NCP section, 3-28
 X.25 section, 3-136
Output report
 Composition of, 4-1
 General description of, 4-1
 Input parameters, 4-1
 Software product environments, 4-4
 Summary pages, 4-2
 Warning messages, 4-1

P

Packet adapters, 3-121
PACKET SIZE =
 X.25 section, 3-136
Parameter format, 3-3
Parameter types
 Integer, 3-3
 Literal, 3-3
 Real, 3-3
Parameterization, 3-1
Path Control
 CAM section, 3-45
 CNG section, 3-55
Permanent virtual circuits, 3-122
PHR SIZE =
 Node section, 3-17
Physical devices, 3-114
Product prerequisites, 3-1

R

RELEASE =

- APS section, 3-33
- CAF section, 3-42
- CAM section, 3-46
- CNG section, 3-57
- CNS section, 3-62
- DCU section, 3-67
- DSM section, 3-72
- EP section, 3-82
- MAF section, 3-90
- MCP section, 3-35
- MSM section, 3-101
- NCP section, 3-20
- NSS section, 3-106
- NTO section, 3-110
- SEAC section, 3-112
- SRM section, 3-115
- VIM section, 3-119
- X.25 section, 3-129

RELEASE = FAM section, 3-39
Remote Dump (RDMP), 3-105
Remote Initial Load (RIL), 3-105
REPORT FORMAT =

- Node section, 3-13

REPORT OPTIONS =

- Node section, 3-14

Required parameters, 3-1, 3-4
RPQ ADDITIONS =

- Node section, 3-13

S

- Sample MEM analysis #1, 5-1
- Sample MEM analysis #2, 5-5
- Sample MEM Analysis #2
 - Processor A, 5-5
 - Processor B, 5-8
- Sample MEM Analysis #3, 5-11
- Sample MEM analysis #4, 5-13
- Sample MEM Analysis #5, 5-16
- Sample MEM Analysis #6, 5-18
- Sample MEM Analysis #7, 5-21
- SEAC SECTION, 3-111, B-35
- SITE =
 - Node section, 3-11
- SOFTWARE PRODUCT =
 - APS section, 3-33
 - CAF section, 3-42
 - CAM section, 3-46
 - CNG section, 3-57
 - CNS section, 3-62
 - DCU section, 3-67
 - DSM section, 3-72

EP section, 3-82
FAM section, 3-39
MAF section, 3-90
MCP section, 3-35
MSM section, 3-101
NCP section, 3-20
NSS section, 3-106
NTO section, 3-110
SEAC section, 3-112
SRM section, 3-115
VIM section, 3-119
X.25 section, 3-129
SOFTWARE =
 Node section, 3-6
SRM mapping factor, 3-113
SRM SECTION, 3-113, B-37
SS TERM SUPPORT =
 NCP section, 3-24
SS1 line types, 3-77
SS1 PACING =
 EP section, 3-84
STACKS =
 Node section, 3-17
Start/stop lines, 3-77
Static storage requirements, 1-2
Storage requirements, 1-2
Subchannels, 3-81
SUBSYSTEMS =
 CAM section, 3-48
Switched virtual circuits, 3-122
SYSTEM BUFFER SIZE =
 Node section, 3-12

T

Tables component, 2-2
TERM SUPPORT =
 CAM section, 3-47
TRUNK LINE SPEED =
 CNS section, 3-63

U

USER APPLICATIONS =
 APS section, 3-33
Utilities, 3-81
UTILITIES =
 CAM section, 3-46
 CNS section, 3-62
 EP section, 3-82
 MAF section, 3-91
 NCP section, 3-21
 Node section, 3-9

V
VIM SECTION, 3-117, B-39

W
W TITLE =
Node section, 3-6
WINDOW SIZE =
X.25 section, 3-136

X
X.25 SECTION, 3-121, B-41

READER'S COMMENTS

Your comments about this publication will help us to improve it for you. Please comment in the space below, giving specific page and paragraph references whenever possible. All comments become the property of NCR Comten, Inc.

Please do not use this form to ask technical questions about NCR Comten products or services or to request additional copies of publications. Please direct such questions or requests to your local NCR Comten sales or service representative.

Do you have any general comments regarding this publication?

Please indicate your opinions of this publication by placing a check mark (✓) in the appropriate column:

	CLARITY	ACCURACY	ORGANIZATION	COMPLETENESS	USABILITY
Excellent (needs no improvement):	_____	_____	_____	_____	_____
Good (could use minor improvements):	_____	_____	_____	_____	_____
Fair (should have major improvements):	_____	_____	_____	_____	_____
Poor (should be completely changed):	_____	_____	_____	_____	_____

Did you find any errors in this publication? (Please include *page reference* of error.)

Do you have any recommendations to improve this publication?

YOUR NAME: _____ TITLE: _____

YOUR COMPANY: _____

ADDRESS: _____

TELEPHONE NUMBER (optional): _____ DATE: _____

TYPE OF NCR COMTEN EQUIPMENT INSTALLED: _____

Please fold on two lines on opposite side, staple, and mail. No postage is necessary if mailed in the U.S.A. (Elsewhere, any NCR Comten representative will be happy to forward your comments.) Thank you for your cooperation.

Fold

Fold



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 3598 ST. PAUL, MN

POSTAGE WILL BE PAID BY ADDRESSEE

NCR Comten Inc.

Attn: Technical Publications
2700 Snelling Avenue North
St. Paul, MN 55113-9905



Fold

Fold

NE-NJ41-302-A

NCR Comten EXAMS 3.0 Memory Estimation Keyword Reference Manual Printed in U.S.A. NE-NJ41-302-A

NCR Comten Inc.
2700 Snelling Avenue North
St. Paul, Minnesota 55113
(612) 638-7777