



# Software Product Description

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**PRODUCT NAME:** ICS/ICR Handler, Version 1.1, for RSX-11D and IAS

**SPD 15.16.1**

## **DESCRIPTION:**

The ICS/ICR handler provides the user with the capability to access the ICS/ICR hardware and its full complement of options from tasks written in assembly language or FORTRAN IV under the RSX-11D and IAS operating systems.

The ICS/ICR handler features include:

*Support of ICS and ICR Mix* — Up to 12 ICS file boxes or 12 ICR file boxes or any combination of ICS and ICR file boxes to a maximum of 12 are supported by the ICS/ICR handler. This mix and match capability provides the user with the ability to access local (ICS) and remote (ICR) industrial interfaces with a single handler.

*FORTRAN Subroutines* — Communication between tasks written in FORTRAN and the ICS/ICR is accomplished by a series of callable subroutines which constitute a superset of the Instrument Society of America (ISA) SP61.1 Standards. Similarly, tasks written in assembly language can communicate with the ICS/ICR using a set of macros.

*A/D Support* — The support provided for the analog options of the ICS/ICR includes the ability to perform conversion on multiple channels in random or sequential order. Parallel A/D conversions can be performed in parallel on different physical file boxes or within one single file box if multiple A/D converters are present.

*Digital Input and Output Support* — The ICS/ICR handler contains the necessary routines to read contact sense input, set steady state digital output and single shot output.

*Unsolicited Interrupt Processing* — Tasks can be associated with digital contact interrupts, counters, CTRL/C received at a remote terminal connected to an ICR, or the occurrence of an error. The ICS/ICR handler can schedule tasks for execution when it detects these conditions. Contact interrupts and counters can also be handled by specifying a circular buffer into which data is stored for further manipulation and analysis.

*Error Detection, Power Fail Recovery* — Handler generation options allow the user to specify how to handle errors such as communication errors on an ICR serial line, failure of a remote ICR file box, and power failure of remote (ICR) file boxes.

## **MINIMUM HARDWARE REQUIRED:**

Any RSX-11D or IAS configuration with one of the following: NCS11, ICS11 or ICR11 Industrial Control Subsystem. The handler requires between 2K and 8K words of partition space when loaded.

## **OPTIONAL HARDWARE SUPPORTED:**

Additional NCS11, ICS11, or ICR11 subsystems in any mix up to a system total of 12. The handler supports the following subsystem options:

NDC/IDC-IA Isolated DC Sense  
NDC/IDC-IB Isolated DC Interrupt  
NDC/IDC-IC I/O Counter  
NDC/IDC-ID Non-isolated DC Sense  
NDC/IDC-IE Non-isolated DC Interrupt  
NDC/IDC-OA DC Flip-flop Driver  
NDC/IDC-OB DC Single Shot Driver  
IAC-IA Isolated AC Sense  
IAC-IB Isolated AC Interrupt  
IAC-OA AC Flip-flop Driver  
IAC-OB AC Single Shot Driver  
IRL-OA Latching Output Relay  
IRL-OB Flip-flop Output Relay  
IDA-OB 4 Channel D/A Converter  
IDA-IA 8 Channel A/D Converter  
IMX-IA 16 Channel Multiplexer for IAD-IA

## **PREREQUISITE SOFTWARE:**

One of the following:

RSX-11D operating system, Version 6.2 or later  
IAS operating system, Version 1.1 or later

## **OPTIONAL SOFTWARE SUPPORTED:**

None

## **TRAINING CREDITS:**

None

## **SUPPORT CATEGORY:**

B — Software Support will be provided as stated in the Software Support Categories Description located on the last page of this SPD.

## **UPDATE POLICY:**

Software Updates, if any, released by DIGITAL during the one (1) year period following installation, will be provided to the customer for a media charge. After the first year, updates, if any, will be made available according to then prevailing DIGITAL policies.

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**ORDERING INFORMATION:**

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The following key (D, E) represents the distribution media for the product and must be specified at the end of the "Q" number, i.e., QJ589-AD = binaries on 9-track magnetic tape.

D = 9-track Magnetic Tape (TU10)

E = RK05 Disk

*Standard Options*

QJ589 -A— Single-use license, binaries, documentation, support services (media: D, E)

QJ589 -C— Single-use license, binaries, documentation, no support services (media: D, E)

QJ589 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

*Update Options:*

Users of ICS/ICR, Version 1 whose specified Support Category warranty has expired may order under license the following software update at the then current charge for such update. The update is distributed in binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QJ589 -H— Binaries, documentation (media: D, E)

Users of ICS/ICR, Version 1 whose specified Support Category warranty has not expired may order under license the following software update for the then current media charge. The update is distributed in binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QJ589 -W— Binaries, documentation (media: D, E)

**ADDITIONAL SERVICES:**

None

**SOFTWARE SUPPORT CATEGORIES**

Each software product (hereinafter 'SOFTWARE') with a designated Support Category A or B in the applicable Software Product Description (SPD) existing at the time of order will be the current release at the time of delivery and will conform to the SPD. DIGITAL's sole obligation shall be to correct defects (nonconformance of the SOFTWARE to the SPD) as described below. Any SOFTWARE with a designated Support Category C will be furnished on an 'as is' basis.

For SOFTWARE with a designated Support Category A or B, DIGITAL will provide the services set forth below without additional charge.

**CATEGORY A**

1. Upon notification by customer to the nearest DIGITAL office that the computer system, including all required prerequisite hardware and software, is ready for the installation of the SOFTWARE, DIGITAL will install such SOFTWARE in any location within the contiguous forty-eight (48) United States, the District of Columbia, or a country in which DIGITAL or a subsidiary of DIGITAL has a software service facility. The notification must be received by DIGITAL and the system must be ready for installation within thirty (30) days after the delivery of the SOFTWARE to customer or DIGITAL will have no obligation to install. Installation will consist of: (1) verification that all components of the SOFTWARE have been received by customer, (2) loading the SOFTWARE, and (3) executing a DIGITAL sample procedure.
2. During the ninety (90) day period after installation, if the customer encounters a problem with the current unaltered release of the SOFTWARE which DIGITAL determines to be a defect in the SOFTWARE, DIGITAL will provide the following remedial service (on site where necessary): (1) if the SOFTWARE is inoperable, apply a temporary correction (TC) or make a reasonable attempt to develop an emergency by-pass, and (2) assist the customer to prepare a Software Performance Report (SPR) and submit it to DIGITAL.
3. During the one (1) year period following installation, if the customer encounters a problem with the SOFTWARE which his diagnosis indicates is caused by a SOFTWARE defect, the customer may submit an SPR to DIGITAL. DIGITAL will respond to problems reported in SPRs which are caused by defects in the current unaltered release of the SOFTWARE via the Maintenance Periodical for the SOFTWARE, which reports SPRs received, code corrections, temporary corrections, generally useful emergency by-passes and/or notice of the availability of corrected code. Software Updates, if any, released by DIGITAL during the one (1) year period, will be provided to the customer on DIGITAL's standard distribution media as specified in the applicable SPD. The customer will be charged only for the media on which such updates are provided, unless otherwise stated in the applicable SPD, at DIGITAL's then current media prices.

**CATEGORY B**

During the one (1) year period following delivery, the services provided to the customer will be the same as set forth in 3 above.

**CATEGORY C**

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