

1984 AppleBus File Server

This brief report addresses yet another version of the file server. Characteristics of this version include:

- o 68000 based
- o AppleBus based using SCC
- o 128K RAM upgradable to 512K with 256K parts (no wait states)
- o Internal Widget Hard Disk
- o Internal (or external?) Sony Drive

Applications

This low cost server engine has the following applications:

- o AppleBus based file server with 20MB hard disk
- o Communications server (hard disk not installed)
- o Printer server

And, if an expansion slot is provided

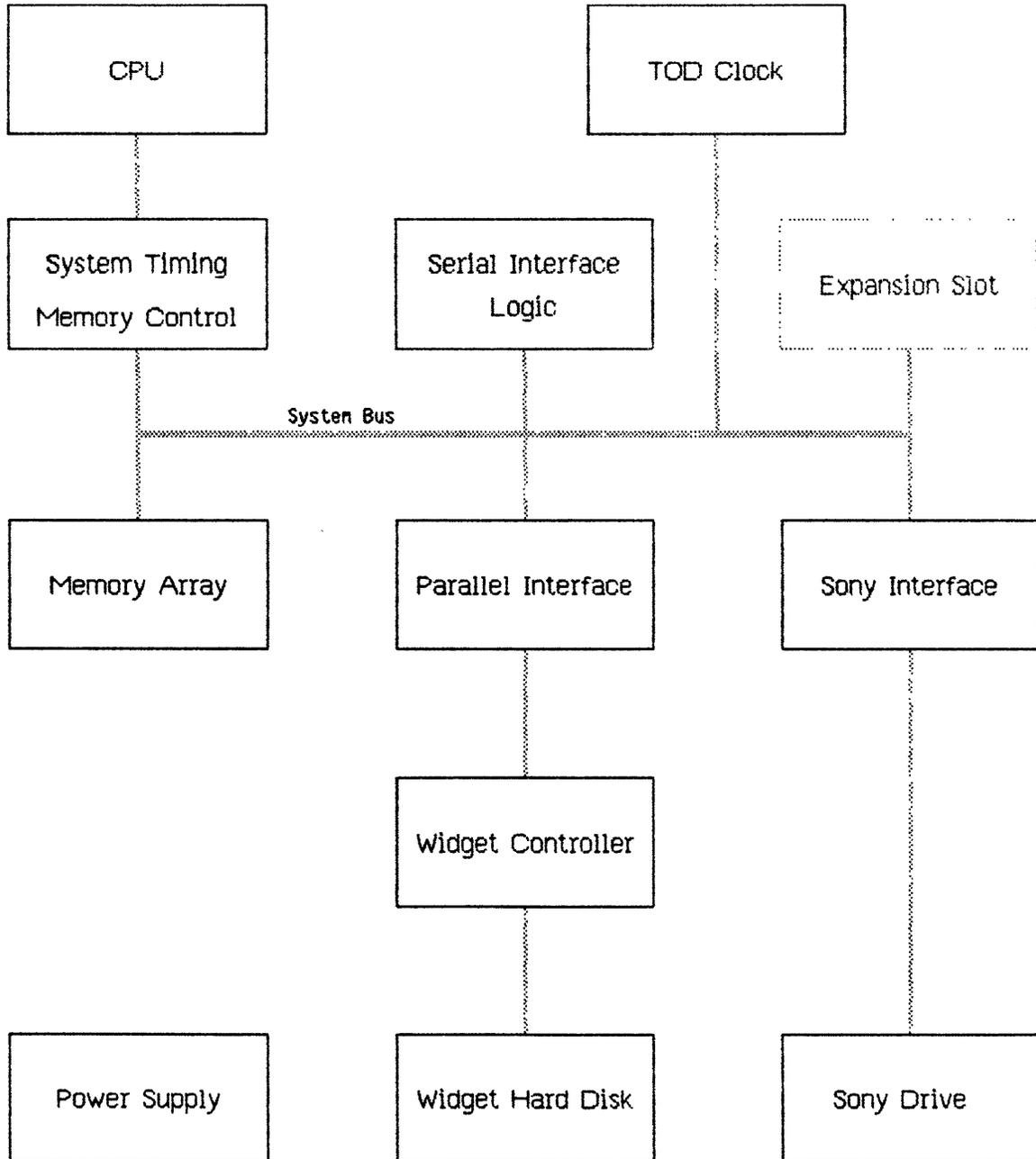
- o Laser printer server
- o Most anything else

Packaging

Although the packaging issue will not be addressed at this time, the general concept is that the entire system would be contained in a single package, with the possible exception of the Sony disk drive. The issue of an expansion slot is also open at this time.

If it is decided that this server in a real product, the packaging issue should be addressed as soon as possible, since this aspect of a project always tends to take the longest.

1984 File Server Block Diagram



Electronics

The Processor

An 8MHZ Motorola 68000 is used as the processor. The 68000 is initially controlled by two ROMS, at this point the ROMS can be anywhere from 16K bits to 256K bits -- the initial configuration will probably be for two 64K bit ROMS for a total of 16K bytes of code.

Memory

The file server will contain 128K bytes of parity RAM. This will be done by using 18 64K DRAM chips. An upgrade path for 1/2 Megabytes could will be provided for with the use of 256K DRAM parts.

Hard Disk I/O

The file server will have a built-in Widget hard disk. The interface and controller will be mounted on the same PC board as the processor. This will reduce the cost of the complete system slightly, however it will increase the cost of the system if a hard disk is not required. Also, this approach precludes the use of a Seagate drive. It might not be a bad idea to keep the hard disk controller with the hard disk, as is currently done in Apple.

Sony Floppy Disk Drive

A Sony disc controller will be provided on the main logic board. The controller will contain an IWM chip and PWM circuitry to control one Sony drive. The final product may contain either a built-in drive or an external drive, as decided upon at a later date.

Time-of-Day Clock

The file server will use a MAC TOD clock chip to provide time and date information to the file server. This clock could be battery backed-up, if desired.

Serial Port I/O

The serial I/O is provided for by an SSC chip and misc logic. The two serial ports will look like Lisa serial ports. One will contain additional control line for modems and the other will be a minimum port that can be used for AppleBus.

Expansion Port

A connector for an expansion I/O board can be provide, this bus will be a

simple 68000 oriented bus for use with such things as a large hard disk interface, laser printer interface, or an interface to another computer or network. This port will be designed in and if, at a later date, it is decided to be unnecessary, can be left unstuffed.

Power Supply

The current plan for the power supply is to use an off-the-shelf 40 watt supply to power the main logic board, Sony drive, Widget drive, and expansion port.

Schedule

The attached schedule assumes the full time effort of two engineers and a minimal amount of support of other. Critical outside support, however, does include:

- o CAD data prep and PCB layout
- o PCB fab
- o Widget support from MSG
- o Ability to acquire parts on time

Cost

Since the majority of the Cost is the Widget hard disk, the cost estimates should be taken lightly.