

AMB2005-07

May 9, 2005

Announcing the AM-8000 Series II™

Alpha Micro's Premier Server Upgraded To 64 Bit Architecture

Dear Alpha Micro Dealer:

Alpha Micro is pleased to announce a new version of our top-of-the-line AM-8000 server system. Incorporating the very latest technology in a number of areas, the new AM-8000 Series II advances the state of the art of AMOS® systems and achieves speeds never before seen.



As with the original AM-8000, Alpha Micro tested current processors to identify which one runs AMOS benchmarks the fastest. The "8KS2" is built upon the clear champion: the 64-bit **AMD Opteron® 252**. The Opteron family has been getting plenty of accolades in the press, and now we see why:

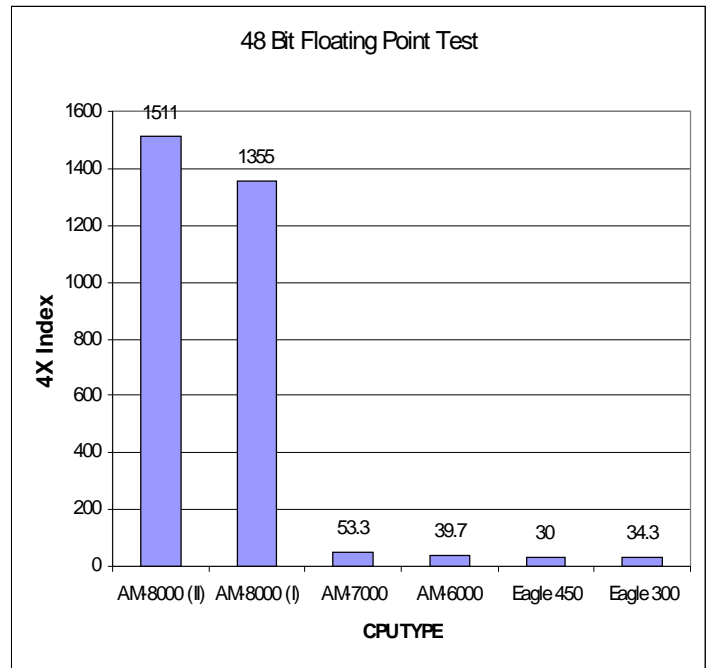
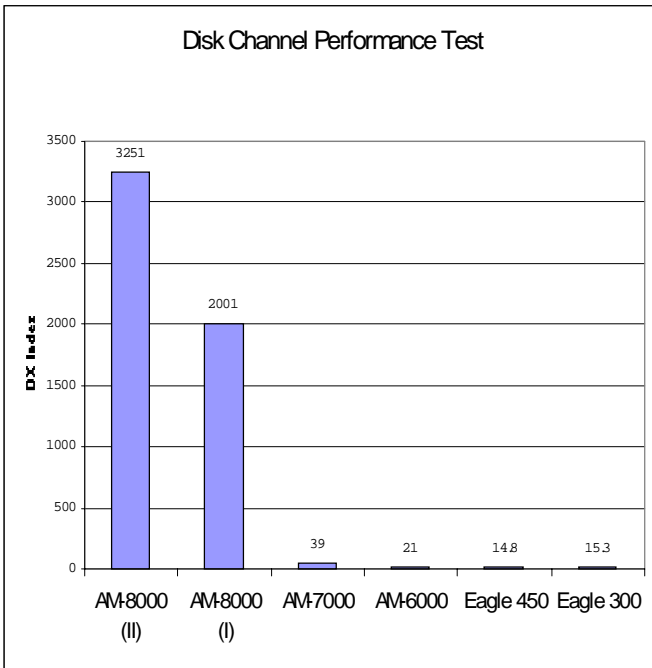
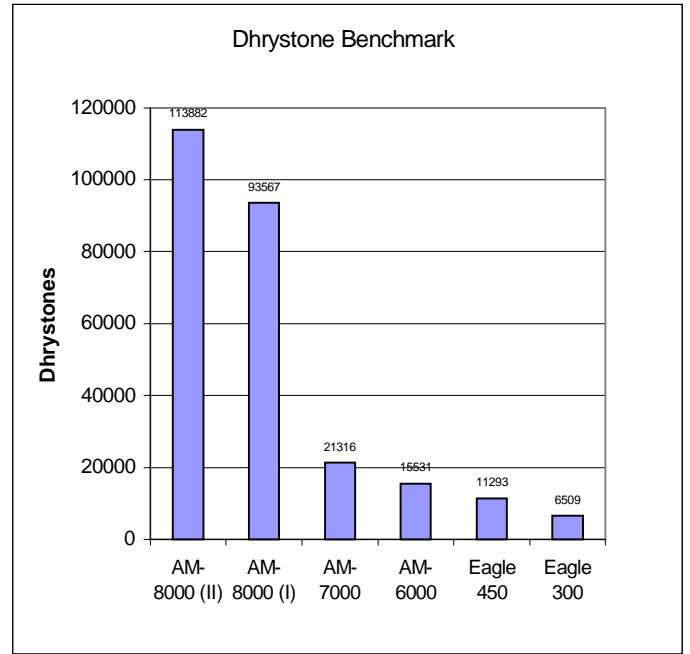
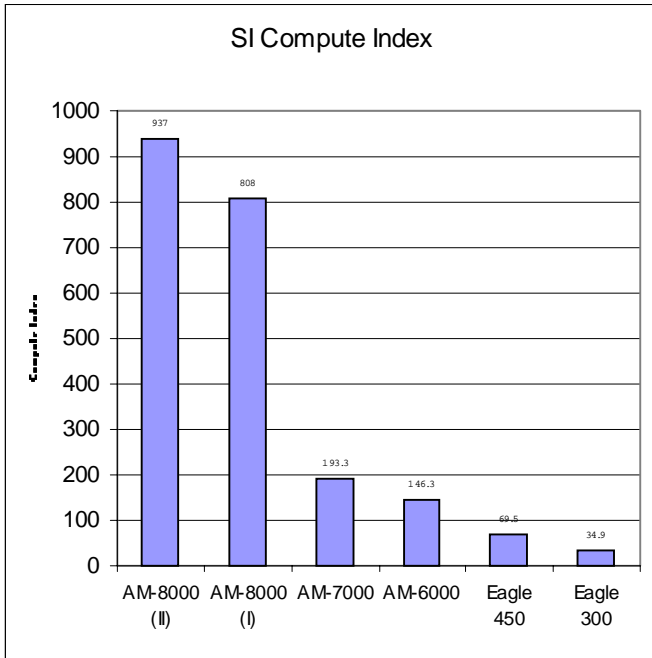
From 15% to 62% Faster Than The Original AM-8000

The benchmarks on the next page tell the story: The Series II beats the original AM-8000 in CPU Speed, Floating Point, and especially in cached Disk I/O. The Disk SI test, which yields 39 on an AM-7000 and 2167 on the original AM-8000, now yields 3251 on the 8KS2! This performance improvement is primarily due to the vastly more efficient RAM controller architecture that accompanies the Opteron family.

AM-8000 Series II Benchmarks

Here are a few of the dramatic benchmark test results.

For more details, see pages 10-13 of the attached "AM-8000 Series II Information Package".



Leading Edge Feature Set

Every top of the line technology that can benefit AMOS users has been employed in the 8KS2. Take a look:

- **Dual Ultra 320 SCSI Controllers:** As with the original AM-8000, these dual SCSI interfaces permit you to put your (higher speed) disk drive(s) on one of the interfaces, and your slower tape drive(s) on the other interface. Such a configuration allows your disk I/O to occur at maximum speed, unencumbered by the slower tape drives.
- **Dual Ethernet Interfaces, including Dual Gigabit Interfaces:** With two Gigabit Ethernet ports, the 8KS2 provides top-flight network throughput.
- **The Fastest SCSI Disk Drive Available Today:** The 8KS2 includes the disk drive that Storage Review has tested to be the fastest disk drive on the market today: The Maxtor Atlas II 15,000 RPM. At 36 GB, this drive also provides twice the capacity of the original AM-8000 drive.
- **An Upgraded DVD-RAM Drive:** This versatile drive sports faster 5x DVD-RAM recording speed, and is capable of reading and writing to all popular formats: DVD-RAM, DVD+R, DVD-R, DVD+RW, DVD-RW, CD-R, and CD-RW.

How fast is fast? A COPY of an entire AMOS 8.1 release from one logical disk to another takes *only 5 seconds!* See Marketing Bulletin AMB2005-09, *LightningBASIC 1.0 and AMOS 8.1 Introduced*, for details.

Faster, 1 GB RAM Included

To complement the Opteron's faster memory controller architecture, the 8KS2 comes standard with 1 GB of PC3200 Registered ECC RAM, some of the fastest DRAM available today.

New Serial Port Expansion Options

There are 2 COM ports on the 8KS2 motherboard, and 4 "Alpha Micro style" serial ports on the AM-113-50 card, the same as with the original AM-8000.

A new family of 4 and 8 port COM port expansion cards is being introduced for the 8KS2 and our entire AMOS 8.x server product line. The principal benefit of these new cards is the ability to plug into any kind of PCI slot: traditional 32-bit PCI slots, the original AM-8000's 64-bit PCI slots, and the 8KS2's PCI-X slots. AMOS 8.x supports a maximum of 18 COM ports.

Because the motherboard used in the 8KS2 has only one 32-bit PCI slot, only one AM-359 serial I/O bus is supported. It is not possible to put a second AM-113-50 card into this system to drive a second 60-pin I/O paddle card bus. Up to 15 AM-359 cards may be attached to an 8KS2, yielding 120 serial I/O ports.

A New Chassis

The standard 8KS2 comes in a new beige tower chassis designed to fit the new motherboard. You may optionally order a black rack-mount chassis.

AMOS 8.1 and LightningBASIC™ Standard

You would expect the latest hardware to be accompanied by the latest software, and so it is. The 8KS2 includes AMOS 8.1, the latest update of Windows XP Embedded®, and a free PIC Code for LightningBASIC™, our new native x86 AlphaBASIC runtime environment.

64-Bit Ready

Future versions of Windows XPE and AMOS 8.x will be able to take advantage of the Opteron's 64-bit architecture. The extent of the benefit of that enhancement has yet to be determined, however it promises to make memory transfers noticeably quicker.

Upgrades From Existing AM-8000s

A special upgrade system configuration provides all that you need to trade up to a new AM-8000 Series II from an original AM-8000. It incorporates the new CPU, motherboard, RAM, chassis, disk drive, and XPE and AMOS upgrades. You may retain your existing disk drive(s), DVD-RAM, tape streamer, and any other peripherals. See the price list for details.

Upgrades from 68000 family Alpha Micro models continue as before.

Two Week "Test Drive" Program Continues

AM-8000 Series II systems are available for free two week evaluations. Show your customers just how much faster their applications run on the latest Alpha Micro technology!

AM-8000 Series I Still Available

The original AM-8000 will remain in the product line for the short term, as long as demand exists and the major components are still being manufactured.

The New Technology Is Available Right Now

With the AM-8000 Series II, Alpha Micro continues its commitment to deliver a top end server based on the best current technologies, to meet increasing demands on system resources.

AM-8000 Series II systems are available for shipment immediately.

**FOR FURTHER TECHNICAL DETAILS ON THE
AM-8000 SERIES II, SEE THE INFORMATION PACKAGE,
ATTACHED TO THE END OF THIS MARKETING BULLETIN**

AM-8000

Series II

Information Package

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Introducing the AM-8000 Series II!

Product Overview

Table 1 highlights the technology features that place the AM-8000 Series II at the top of the AMOS product family. Compared to other family members, the AM-8000 system family's most distinctive feature is performance. A CPU SI (System Index) rating of 937 alone positions the AM-8000 Series II ahead of the Series I by 16% and far ahead of any prior Alpha Micro computer, with a 400+% lead over the AM-7000. Note that overall throughput is application dependent.

Architecture

The AM-8000 Series II is a logical extension to the AM-8000 product family. The hardware is built around the Opteron 64-bit processor architecture, extending the performance of the existing high end of our product line. The system is housed in a larger pedestal chassis in order to house the new motherboard.

The system configuration is expanded via industry standard technologies. A PCI bus is included to accommodate special function boards, such as our AM-113-50. This board, included in the standard AM-8000 configuration, is a high speed serial I/O controller that manages the majority of serial I/O devices on the AM-8000 via the Alpha Micro standard paddle card bus. The board also includes special AMOS functions such as a standard SSD interface, UPS interface, and four on-board serial I/O ports.

The standard system configuration also includes a DVD-RAM drive, 15" flat screen monitor, keyboard, and mouse.

The system is housed in a modern desktide enclosure, with plenty of room for future expansion. The AM-8000 Series II houses the standard DVD-RAM and first hard disk drives, and up to 6 additional 5.25"/3.5" peripherals. Figure 1, later in this document, shows the details.

Advanced Technology

The AM-8000 leverages leading-edge technology in several areas:

Microprocessor technology — The AM-8000 incorporates an AMD Opteron 252 microprocessor chip, the top performing chip in the Opteron dual processor line. Optionally, a second Opteron 252 microprocessor can be added to the system.

DIMM main memory — The AM-8000 Series II CPU Board has four on-board DIMM (dual inline memory module) expansion slots for each microprocessor, which support PC3200 DDR Registered ECC RAM modules. Memory capacities from 1 GB to 4 GB are supported.

Ultra320 SCSI — Two Ultra320 SCSI busses are contained in the AM-8000, the fastest SCSI implementation in the industry. One wide SCSI bus is configured to communicate exclusively with high speed wide SCSI disk drives in order to optimize system performance in disk intensive applications. The other wide SCSI bus is configured to support backup devices and other SCSI peripherals (both internal and external).

Gigabit Ethernet — Two Ethernet interfaces are provided to maximize both performance and flexibility. These interfaces supports 10 Mbps, 100 Mbps, and 1000 Mbps transfer rates, allowing you to configure your network architecture to meet the needs of your application.

Table 1. AMOS Product Line

Mid- to High-range AMOS-based Systems						
	Eagle 450	Super Eagle	AM-6000	AM-7000	AM-8000 (Series I)	AM-8000 (Series II)
System						
Processor Board		Roadrunner 040	Roadrunner 060	Roadrunner 75	Dual Athlon PCI bus	Dual Opteron PCI bus
Performance: SI	69.5	79.9	146.3	193.3	816	937
CPU Main Processor	ColdFire RISC (Motorola)	MC68040 (Motorola)	MC68060 (Motorola)	MC68060-75 (Motorola)	Dual Athlon 2800+ MPs (AMD)	Opteron 252 (AMD)
On chip (L1) Cache	3KB	8KB	16KB	16KB	128KB	64KB
L2 Cache	64KB	32KB	64KB	128KB	512KB	1 MB
Memory: min./max.	4MB/256MB	4MB/64MB	8MB/256MB	32MB/512MB	1GB/4GB	1GB/4GB
Memory technology	DRAM	DRAM	DRAM	EDO RAM	PC2100 DDR ECC RAM	PC3200 DDR ECC RAM
Input/Output						
Separate I/O Processor	None	None	None	None	ColdFire RISC	ColdFire RISC
Serial ports, standard	8	4	4	4	6 (2 non-RISC)	6 (2 non-RISC)
Serial ports, maximum	32	200+	200+	200+	240+*	120+
I/O Expansion Cards	AM-314 / 318	AM-359	AM-359	AM-359	AM-359	AM-359
Parallel Ports	1	4	4	4	1	1
Terminal Servers	Optional AMOS Terminal Servers provide additional serial and parallel I/O					
Networking						
Ethernet ports: min/max	1 / 2	1	2	2	2	2
10BaseT port	Standard	Standard	Standard	Standard	Standard	Standard
100BaseT port	Optional	Not available	Optional	Standard	Standard	Standard
Gigabit Ethernet port	Not available	Not available	Not available	Not available	Standard	Standard
Fax Send/Receive	Optional AlphaFAX 2.1 Plus software provides comprehensive fax management facilities					
SCSI Support						
SCSI Bus technology	8- or 16-bit	8-bit	8- or 16-bit	8- or 16-bit Ultra40	8-, 16-bit Ultra320	8-, 16-bit Ultra320
Maximum transfer rate for Wide SCSI devices	20MB/sec	10MB/sec	20MB/sec	40MB/sec	320MB/sec	320MB/sec
Wide SCSI Repeater for external devices	Optional AM-441	Not available	Optional AM-441	Optional AM-441	Optional AM-441	Optional AM-441

*Over 120 AM-359 serial ports requires an optional second I/O processor.

AM-8000 Product Description

Chassis

The AM-8000 is furnished in a desktide full size tower chassis. Specifications of the chassis are as follows:

- **Dimensions**—24.7" high x 8.3" wide x 21.1" deep (62.7 cm x 21.1 cm x 53.6 cm)
- **Power requirement**—5 amp @ 115VAC; 2.5 amp @ 230VAC
- **Peripheral mounting**—The chassis accommodates up to nine peripheral devices. Figure 1 shows the details.

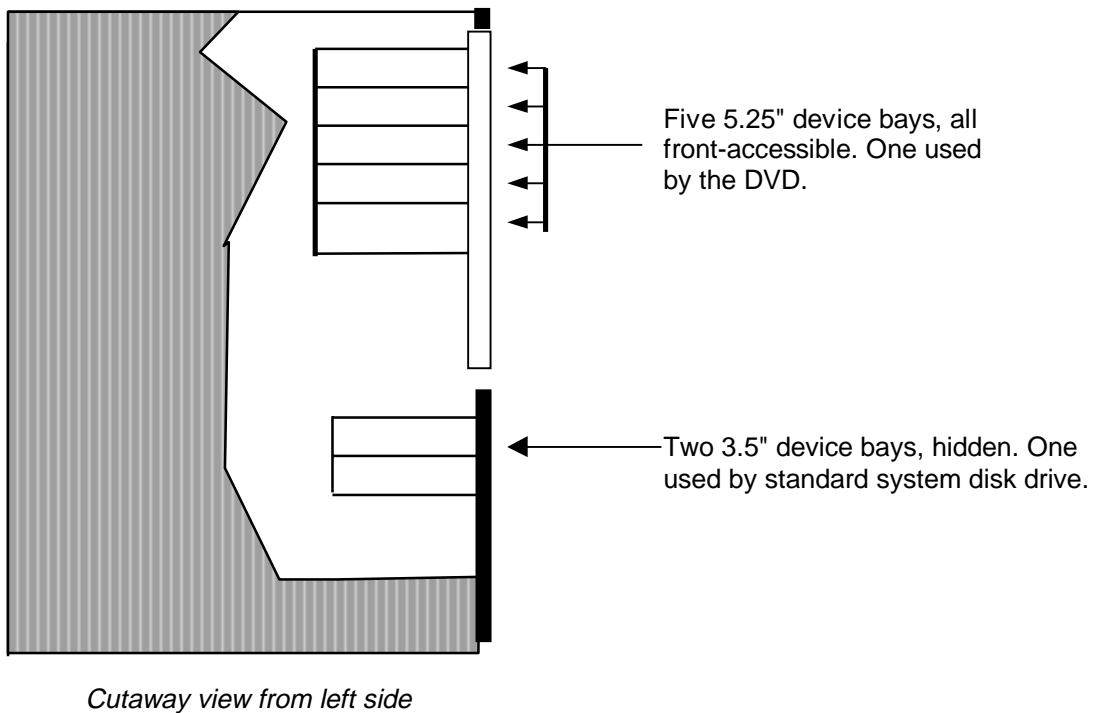


Figure 1. AM-8000 Series II in Desktide Chassis

Main Memory

Main memory for the AM-8000 Series II is implemented in high-speed Registered ECC PC3200 DDR RAM, packaged in DIMM modules on the AM-8000 main CPU board. The system supports a minimum of 1GB and a maximum of 4GB. Two 512 MB DIMMs are included as standard with every AM-8000. DIMMs are offered in capacities of 512MB and 1GB each, identified by new part numbers PFB-00721-XX.

The AM-8000 Series II main CPU board is equipped with four DIMM sockets for each Opteron processor. Always install memory in order, starting with DIMM socket 1 (closest to the corresponding Opteron processor on the board). When adding a second Opteron processor in the AM-8000 Series II system, you must add additional memory for that processor.

Serial I/O

The AM-8000 Series II comes with six serial I/O ports as standard. The ports appear as four RJ-45 jacks and two PC style DB-9M connectors on the rear of the AM-8000 system. Additional serial ports are optional and can be implemented in a variety of ways. One way is to externally install AM-359 cards in a Serial I/O chassis like the AM-905-31 or AM-3501 chassis and cable the AM-8000 system to the external I/O chassis. Another is to connect a terminal server via an Ethernet connection to the AM-8000. A third way is to install up to 16 additional COM ports on 4 port and/or 8 port 32-bit PCI cards.

Up to 15 AM-359 cards (8 serial I/O ports each) can be externally connected to the I/O processor board within the AM-8000 for a total of 120 additional serial I/O ports. For details see Table 2, **AM-8000 Series II Serial I/O Options**.

Table 2. AM-8000 Series II Serial I/O Options

Line No.	Configuration Details	I/O Cards	Total Serial Ports
101	Maximum Ports Inside AM-8000 System		
102	Standard serial ports in AM-8000 system ①		2
103	Additional AM-113-50 Serial I/O Controller (4 on-board RJ-45 ports) ①		4
104	Additional PFB-00131-58 PCI Serial I/O Controller (8 on-board DB-9 ports per board) ②		16
105	Total serial ports inside AM-8000 system		22
106	Maximum Ports with external AM-3501 Expansion Subsystem ③		
107	Standard serial ports on AM-8000		22
108	AM-359 cards in AM-3501	7 AM-359 cards	56
109	Total serial ports: AM-8000 + AM-3501		78
110	Maximum Ports with external AM-905-31 I/O Expansion Chassis ③		
111	Standard serial ports on AM-8000		22
112	AM-359 cards in AM-905-31	15 AM-359 cards	120
113	Total ports: chassis + AM-905-31		142



Line numbers are for reference during telephone conversations and have no other significance.

- ① The AM-8000 desktide mini-chassis contains one AM-113-50 as standard. This board includes four on board serial I/O ports (RJ-45) and the ability to externally drive up to 15 AM-359 paddle cards housed in either an AM-3501 or AM-905-31 I/O subsystem chassis. Two standard DB-9 serial I/O ports are also included in the AM-8000, for a total of six serial I/O ports in the base configuration.
- ② Assuming 2 PCI slots are available for the PFB-00131-58 boards. A maximum of 18 COM ports is supported , including the two on the motherboard.
- ③ See Section I of the *AMOS Products Price List* for details of the AM-3501 and AM-905.
- ④ The maximum physically-installable AM-8000 Series II configuration is 142 serial ports (including 2 32-bit PCI slots).

Terminal Servers

Installing AM-359 cards is one way to add serial ports to an AM-8000. Terminal servers are another. At present we offer the Eagle 450TX terminal server. For upgrades from older AMOS systems, an AMOS Terminal Server upgrade is available to convert the original system into a terminal server.

An AMOS terminal server is a computer that connects a group of AM-65 or other compatible terminals to Ethernet. The Eagle 450TX connects up to 32 terminals. Connection for a parallel printer is also standard. The server communicates with the AM-8000 via AlphaTCP. See Figure 2. Users at the terminals see the same features and functions as if their terminals were hard-wired to the AM-8000 through RS-232 cables. MULTI, a popular option on the AM-8000 and other AMOS systems, is a standard feature of the AMOS terminal server software.

Terminal servers offer several advantages over hardwired terminals:

Total flexibility in system layout — With a terminal server you can install terminals wherever the network reaches. Distance limitation of RS-232 cabling is no longer a factor.

Performance potential — A terminal server can offload MULTI windowing, a resource-intensive operation, from the AM-8000 host. This frees up host resources for other jobs, so the user sees an overall improvement in system performance.

Simpler setup — Putting terminals on an AMOS terminal server instead of adding jobs to the AM-8000 makes the system easier to manage. Easier expansion is one example. Just connect another AM-65 to the server, power up the terminal, start a TELNET session with the AM-8000, and you're ready to begin operating.

From the outside a terminal server looks much the same as a standard Eagle system. Inside are flash memory, RAM memory, and an Ethernet controller. For pricing see the current AMOS hardware price list. For configuration details and other product information see this marketing bulletin:

AMB99-26 *Eagle 450TX Terminal Server Announced*, July 30, 1999

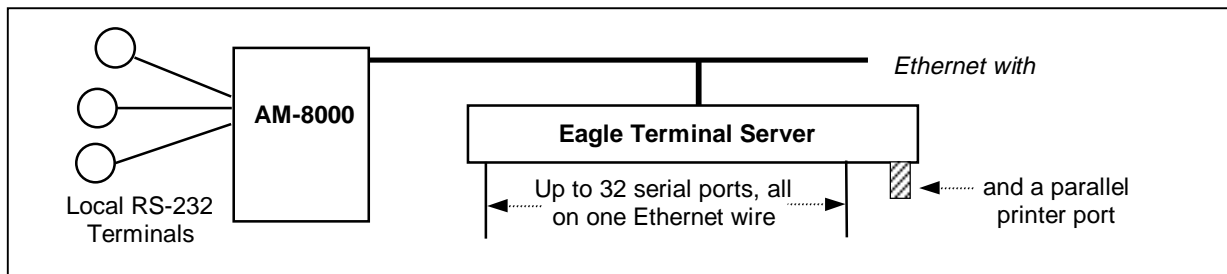


Figure 2. AM-8000 with Eagle Terminal Server

PC and AM-80 Thin Client Workstations on the AM-8000

PC workstations are another way for users to access the resources of an AM-8000. PCs can connect serially or, more often, via Ethernet. Connection is supported by popular terminal software such as AlphaLAN⁺⁺, STEP⁺⁺, and ZTERM.

The AM-80 Thin Client is a small footprint, diskless PC that boots up directly into ZTERM. It supports Ethernet as well as serial connections. It offers the benefits of a full PC with lower cost of ownership, because it needs virtually no administration once set up.

In addition to the convenience of remote access, these workstations can enhance system performance. That's because, generally speaking, an Alpha Micro computer is more efficient in processing data for Telnet sessions than for serial connections. We've run benchmark tests to prove it. Our tests show the following:

1. For a given level of throughput, an Alpha Micro computer will support more users on a network than it will using serial terminals.
2. When you add users, an Alpha Micro computer will handle the increased load much more efficiently if the users are on Telnet connections. Throughput per user on Telnet sessions remains relatively constant as the load increases. On serial connections, throughput per user declines rapidly.

SCSI Support

The AM-8000 incorporates two Ultra320 SCSI busses, with significantly higher data throughput than the SCSI busses contained in any previous Alpha Micro computers. Both busses originate at 68-pin connectors on the AM-8000 main CPU board.

One bus is configured to communicate exclusively with high speed wide SCSI disk drives and/or RAID subsystems in order to optimize system performance in disk intensive applications. The other bus is configured to support backup devices and other SCSI peripherals (both internal and external).

SCSI Devices for the AM-8000

A wide choice of disks, tapes, and other SCSI devices helps tailor the AM-8000 to specific site requirements. An AM-8000 supports up to eight SCSI devices mounted inside the chassis (internal devices). To maximize the overall performance of the AM-8000, the highest speed wide SCSI disk drives and/or RAID subsystems should be included in your system configuration.

Configuration Rules

The electrical characteristics of the bus impose certain configuration rules. The following should be noted:

1. Avoid mixing single ended peripherals and LVD compatible peripherals on the same SCSI bus. If one single ended peripheral is on a bus, then all LVD devices must switch to single ended mode, causing a significant reduction in throughput and maximum cable length.
2. The maximum length of external cabling for driving single ended peripherals (non-LVD compatible peripherals such as streaming tape drives), starting from the external SCSI connector on the rear of the AM-8000 chassis, is three feet (91 cm). In practice that usually means a maximum of one single ended external peripheral device.
3. Adding an optional AM-441 Wide SCSI Bus Repeater allows longer external cabling and more external devices for your single ended SCSI bus.
4. If the external devices include Wide or Ultra SCSI mixed with narrow SCSI, the narrow devices must be grouped at the outboard end of the cabling, farthest from the chassis, with an appropriate "High-9 Terminator" cable dividing the two bus widths (such as PDB-00440-80).
5. An external cable is standard with some devices and optional with others. If you plan to supply your own cables, make sure they're fabricated to Ultra SCSI construction standards.

SCSI Disk Drives

The AM-8000 supports all Fast-Wide SCSI-2 and Ultra SCSI drives (PDB-00440-XX).

SCSI Tape Drives

The AM-8000 supports all current SCSI tape drives.

SCSI CD-ROM and CD-RW Drives

The AM-8000 supports SCSI CD-ROM drives. However, the included DVD-RAM drive can read CDs, so a SCSI CD-ROM drive is not required.

SCSI DVD-RAM Drives

The AM-8000 does not support SCSI DVD-RAM drives, however, it does support the DVD-RAM format through its included ATAPI DVD-RAM drive. DVDs prepared on a SCSI DVD-RAM on a previous Alpha Micro system may be read by the AM-8000's DVD-RAM drive.

AM-448 RAID Subsystem

For AM-8000 installations that require large, highly reliable mass storage, specify our AM-448 RAID Subsystem. Configurations start as small as 80GB of usable storage with RAID 1 (mirroring). The subsystem can be expanded to over 280GB of RAID 5 storage in the same desktop enclosure. The RAID subsystems are UltraWide SCSI with 80 megabyte-per-second transfer rate. The AM-448 includes facilities for system installers and support managers to:

- Configure the AM-448 with hot spare disk drives for on-site support.
- Configure the AM-448 as a bootable SCSI device; the subsystem can coexist with other wide SCSI disk drives in the same AM-8000.

For more information see Marketing Bulletin AMB2002-11, *New RAID Subsystems Announced*, October 28, 2002.

Software

AMOS Operating System

AM-8000 Series II systems require AMOS 8.1 or later.

System Performance

Performance of the AM-8000 Series II, like that of any computer, is application dependent. The best way to determine actual throughput is to run an application and measure the results. If such a test isn't practical, benchmarks can provide a relative measurement.

The benchmarks in this bulletin are offered for general comparison analysis and example only. For definitive measurements, VARs and end users should verify actual performance based upon their specific applications and environments. The benchmarks we use give an overall indication of system throughput. It's important to note that the way your application software uses the system may produce results different from those suggested by our benchmarks.

System Index (SI)

The SI benchmark measures processor and memory performance in the AMOS environment. The measure is relative to the original 68000-based Alpha Micro computer, the AM-100/L, which was arbitrarily assigned an SI of 1. See Table 3 below, and the graph at the beginning of this bulletin; bigger numbers are better.

Keep in mind that the SI reflects processor, floating point, and disk speed only, not overall system performance as users will experience it. Factors such as disk accessing and the effect of multiple users are not measured. For a more comprehensive view, see the DOABEN benchmark in the next section.

Table 3. AMOS System Performance Comparison Chart

————— Performance Tests —————

System Model	CPU	SI Compu te Index	DRY Dhrystone Benchmark	DX Disk Channel	4X 48-bit Math
AM-100/L	68000	1.0			
AM-1400	68010	6.1			
AM-1600	68020	22.6			
Falcon/AM-PC	68340	16.1			
AM-2000M (33 MHz)	68020	28.0			
Eagle 100	68030	39.1			
Eagle 250	ColdFire	61.1	10281	14.6	24.5
Eagle 300	68030	34.9	6509	15.3	34.3
AM-3000 VME	68030	43.6			
AM-4000M	68040	66.1			
Eagle 450	ColdFire	69.5	11293	14.8	30.0
Eagle 500	68040	79.9			
Super Eagle	68040	79.9			
AM-6000/6060	68060	146.3	15531	21.0	39.7
AM-7000	68060-75	193.3	21316	39.0	53.3
AM-8000	Dual Athlon MP-2800+	808	93567	2001	1355
AM-8000 Series II	Opteron 252	937	113882	3251	1511

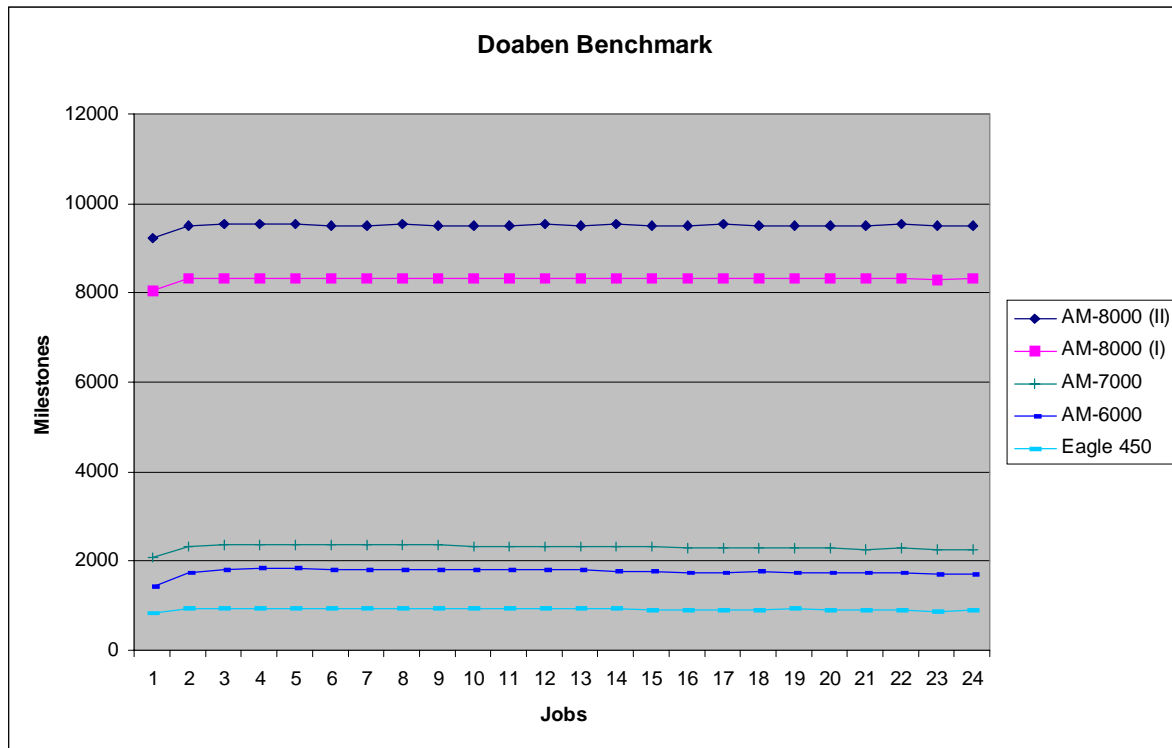
DOABEN Benchmark

DOABEN (**do a benchmark**) is a suite of tests that measure multi-user throughput on Alpha Micro computer systems. Performance is measured in units called Milestones, which represent the number of tasks that can be done in a certain period of time for a prescribed number of users. Programs in the DOABEN suite exercise the system by cycling through functions such as database access, program loading, and CPU usage.

The results of DOABEN testing on the AM-8000 Series I and Series II and three other high-end systems: the AM-7000, the AM-6000, and the Eagle 450 are shown in Figure 3.

- **14% faster than an AM-8000 Series I** — The AM-8000 Series II sets the record for DOABEN performance.
- **More than 3.5 times faster than the AM-7000** — and of course, further ahead of the older high end systems.

Figure 3. DOABEN Comparison — AM-8000 Series II versus AM-8000, AM-7000, etc



The Hoffmeister Benchmark

Another popular benchmark in the AMOS community comes from Jim Hoffmeister at Test Analysis & Development, a long-time Alpha Micro dealer in Boulder, Colorado. This benchmark is based on a software package, written in AlphaBASIC and ISAM, that processes a 450 person payroll. Running from a standard database of test payroll “employees”, the system performs tax calculations, generates checks, and posts the results to various other files.

Because the Hoffmeister benchmark is written entirely in AlphaBASIC and ISAM, it gives a realistic indication of application performance. Also, because it performs many math operations and generates tremendous activity, it uses—and therefore benefits from—CPU features and disk inter-face features to their maximum. The results shown in Table 4 below were measured on systems with extended directory structure, as representative of systems actually running today.

The Hoffmeister benchmark is a real-world application that uses real data. When run in a benchmarking environment, however, it is the only task running on the system. The typical installation, by contrast, runs many tasks concurrently, all competing for system resources. To that extent the benchmark can’t take into account the underlying reason for the popularity of Alpha Micro systems—multi-application versatility in multi-user, multi-tasking environments.

Table 4. Hoffmeister Benchmark - AM-8000 Series I vs Series II

<u>Benchmark Phase</u>	<u>AM-8000 Series I Running Time</u>	<u>AM-8000 Series II Running Time</u>	<u>AM-8000 Series II Advantage</u>
Pre-ISAM build —Create work files to start the benchmark	<1 sec	<1.0 sec	
Payroll system —Prepare payroll for the employees in the database; assign check numbers	9 sec	6.0 sec	
Post —Post General Ledger; calculate year-to-date totals, etc.	8 sec	4.5 sec	
Totals:	18 sec	11.5 sec	36% faster!!

Configuration Note:

The AM-8000 Series I and Series II systems used in this test were both equipped with 15000 RPM disk drives. Results shown above were obtained in tests performed at Alpha Microsystems.

Dhrystone Benchmark

The Dhrystone benchmark is a widely used measure of CPU performance. The Dhrystone algorithm is written in the C programming language and performs a variety of tasks including manipulating strings and arrays, and handling integer math and subroutines. While the Dhrystone test measures CPU performance only, and not disk activity or other system loading, it does provide a useful comparison of one processor with another.

Our Dhrystone tests of the AM-8000 Series I and Series II gave these results (bigger is better):

AM-8000 Series I:	93567 Dhrystones per second
AM-8000 Series II :	113882 Dhrystones per second

The AM-8000 Series II outperformed the AM-8000 Series I by about 21%. See the Dhrystone comparison information in Table 3 on page 11 of this section, and the graph at the beginning of this Marketing bulletin for further comparisons.