



# A4000 GForce040 Product Info

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## Description

The A4000 GForce040 is an accelerator for the Amiga 4000/4000T and the Amiga 3000/3000T computers. It replaces the Commodore Processor board currently found in Amiga 4000's, and will accelerate both 68030 and 68040-based machines. It is a highly integrated circuit board designed to maximize the potential of the Amiga 4000 and 3000 and improve performance for processor-intensive applications like rendering and image processing. It's features include:

- ▶ 40MHz 68040 processor
- ▶ Up to 32MB of RAM on main PCB
- ▶ Up to 96MB of RAM on optional RAM module
- ▶ GVP Exclusive On-Board Expansion Header Port for add-on modules, like the SCSI-II FAST DMA module

FEATURE	BENEFIT
Motorola 68040 Processor at 40MHz	Using the fastest and most powerful Motorola processor available today for the Amiga means that you will get unmatched power and performance. The blazingly fast speed will reduce waiting times dramatically and increase your productivity a minimum of 2x and maximum of 10x depending on your present A4000 configuration.
High-performance on-board RAM	Uses GVP SIMM32 SIMM modules for high speed/fast RAM access, performance and reliability. Up to 32MB can be installed directly on the A4000-040.
Optional RAM Expansion module	Adding the RAM Expansion module increases the on-board memory capacity to 128MB. This gives rendering and image processing applications all the room they need for even the most complex and detailed work, boosting the Amiga 4000 beyond high cost work stations.
Supports Normal and Page Mode RAM access	Supports normal and page mode RAM access to maximize data access in different environments. In some circumstances, normal mode access provides the best method for accessing data, and in others, page mode provides the best method. The A4000-040 supports both modes to handle all situations.
Supports BURST Mode to onboard RAM	Completely supports BURST mode reads and writes to onboard memory for fast access to large blocks of data; ideal for animation editing and playback.
Supports BURST Mode Reads to motherboard RAM	Supports BURST mode reads to RAM on the A4000 motherboard to fast access to blocks of data contained in the A4000's motherboard memory.
On-Board Expansion Header Port for add-on modules	In addition to extra RAM expansion, the A4000-040 has a module connector for additional features. The first module available is the SCSI-II FAST DMA module. Additional modules will become available throughout 1994.
Optional SCSI-II FAST DMA module	This module features all new SCSI technology using the latest circuitry available. This module is capable of SCSI-II FAST data transfers in asynchronous or synchronous modes, using DMA to the on-board memory. DMA allows the transfer of data to and from a SCSI device without slowing down any other tasks in the system. Data will always be transferred as fast as possible, even under heavy multitasking loads. The same expertise that brings you over 4MB/sec on an A1200, gives you unbeatable speed on the A4000. No other SCSI controller is faster!
Designed using Surface Mount Technology (SMT)	GVP has been using Surface Mount Technology since late 1990 ensuring higher reliability and longer life.
One-Year warranty	Buying a GVP product will give you peace of mind knowing that we will be around to service your current and future needs.



# Comparison chart

Feature	GVP A4000 GForce040	Commodore A4000/040	RCS Excalibur
25MHz 68040		✓	✓
40MHz 68040	✓		
Onboard RAM	✓		✓
Maximum onboard RAM	128MB <sup>1</sup>		128MB
Accelerates an A4000-030	✓		
Accelerates A3000 and A3000T machines	✓		
Direct onboard SCSI option	✓		
Expansion header for additional feature add-ons	✓		

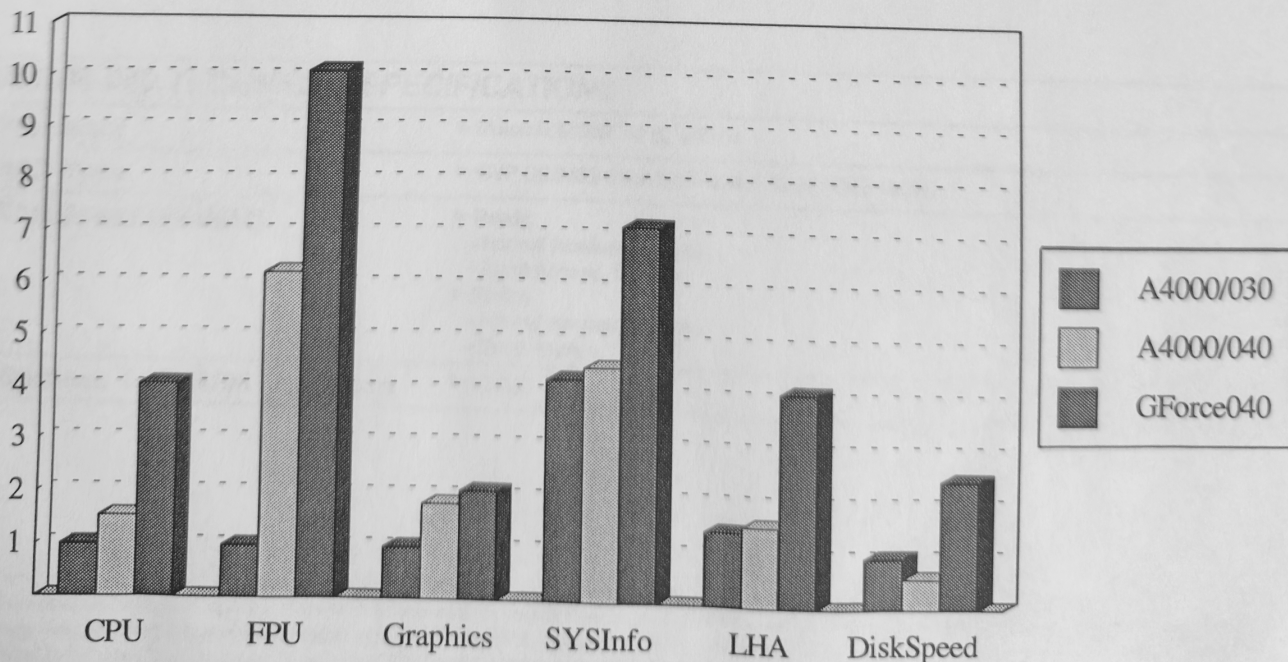
<sup>1</sup> With RAM Expansion module

## Benchmarks

TEST <sup>1</sup>	A4000/030	A4000/040	X FASTER	GVP GForce040/40	X FASTER
	AIBB 6.5 CPU Performance	1.00	1.53	1.53	4.06
AIBB 6.5 FPU Performance	1.00	6.22	6.22	10.10	10.10
AIBB 6.5 Graphics Performance	1.00	1.82	1.82	2.08	2.08
SYSInfo 3.22 Speed Test (MIPS)	4.25	18.99	4.47	30.41	7.16
LHA — Compressing 0.62MB of PageStream files (minutes)	1.43	0.92	1.55	0.35	4.09
DiskSpeed 4.2 Reads <sup>2</sup> from RAM: (bytes per second)	6,389,760	3,791,608	0.59	15,794,176	2.47

<sup>1</sup> All X FASTER (Times Faster) numbers are based on an A4000/030 rated 1.00. All processors were tested in the same machine with the same hard drive, with caches, burst, and copyback modes enabled where appropriate to simulate a real-world environment.

<sup>2</sup> Using 262144 byte buffer, FAST, LONG Aligned.





# Applications

Use the A4000 GForce040 for your most processor intensive applications. It is the perfect solution for image processing and 3D rendering.

- ▶ Toaster and LightWave 3.1 users will love the increased power and reduced rendering times. Use fewer machines to obtain the same results as large 'render farms.' Load and prepare framestores faster than ever before — be prepared for every roll, cut, and wipe, no matter how fast they occur.
- ▶ ImageFX users will love the instant feedback and quick results of intense operations, like oil transfer, wave distort, and spiral.
- ▶ EGS-28/24 SPECTRUM owners will appreciate the snappier response from their 24-bit painting and manipulating tools, as well as the overall performance increase for the machine.

# System Requirements

The A4000 GForce040 only requires an Amiga 4000 or 3000; native processor type or speed is irrelevant.

# Recommended Additional Equipment

With a machine as powerful as the Amiga 4000 with an A4000-040 installed, we recommend the following additional equipment to maximize the potential of the machine:

- ▶ **A4000-040 RAM Expansion module with RAM** — Using slow Virtual Memory schemes will seriously degrade your investment in the A4000-040. For every percentage of speed gained in processor power, it is almost thrown away with disk access.
- ▶ **A4000-040 SCSI-II FAST DMA module** — For loading and saving, there is no faster way than with a SCSI-II FAST DMA interface. Bypassing the normal Zorro-III bus, this module has direct access to all onboard memory, and can transfer sustained data to/from a hard drive at up to 10MB/sec<sup>1</sup>.
- ▶ **SCSI-II FAST Hard Drive** — The SCSI-II FAST DMA hard drive interface, while compatible with all SCSI devices, will be most useful when connected to a SCSI-II FAST hard drive. The speed capabilities of the interface should be matched with a drive that is able to keep up.

<b>A4000-040 TECHNICAL SPECIFICATIONS</b>	
<b>Processor</b>	▶ Motorola MC68040 @ 40MHz
<b>RAM Type</b>	▶ GVP SIMM32-60ns SIMMs at 4MB or 16MB sizes
<b>RAM Speed (SIMM32)</b>	▶ Reads <ul style="list-style-type: none"> <li>• Normal Access, 5 clocks</li> <li>• Burst Access, 5-2-2-2</li> </ul> ▶ Writes <ul style="list-style-type: none"> <li>• Normal Access, 5 clocks</li> <li>• Burst Access, 5-2-2-2</li> </ul>
<b>Maximum Total RAM Expansion</b>	▶ 128MB

<sup>1</sup> Provided the hard drive is also capable of this speed. A recent review of hard drives on the market by an independent, platform-independent magazine revealed that the fastest hard drive on the market is only capable of a little over 5MB/sec on a sustained basis; although it should be noted that up to 20MB/sec can be achieved for short bursts when using the drives built-in caches.