



AALCHEMY™

SCALABLE, OPEN ARCHITECTURE ADVANCED PC-IG

AALCHEMY SYSTEM FEATURES

It takes more than just good graphics to make a PC-IG. AAlchemy features a tailored system design that is built from the ground up to deliver the maximum performance and reliability that precision training systems require.

- ▶ Ruggedized, 4U, 19" Rack-Mount Chassis
- ▶ High-Capacity, High-Reliability Cooling Fans and Removable Dust Filters for Harsh Environment Operation
- ▶ Add-in Board and Cable Retention Mechanisms for Enhanced Shock and Vibration Immunity
- ▶ Semi-Custom, Auto-Sensing 600W International Power Supply with Power Factor Correction
- ▶ FCC Class A, ETL and CE Certified
- ▶ Shock Resistant, Removable Disk Drive Bay Supports Up to Three 3.5" or 5.25" Devices
 - One Removable, Shock Mounted 3.5" ATA-100 Hard Drives
 - Removable, Shock Mounted 3.5" Ultra SCSI-160 HDD Upgrade Option
 - 2nd Removeable Drive (ATA-100 or Ultra SCSI-160) Optional
 - 48X or Faster CD-ROM (CDRW Optional) Drive
- ▶ Separate 1.44 MB 3.5 Floppy Drive Standard
- ▶ Server Class Motherboard with Dual Intel Pentium III Socket 370 Processors-1 GHz Standard
- ▶ PC-133 ECC Registered SDRAM DIMM Slots for up to 2 GB of ECC System Memory-256MB Standard
- ▶ NVIDIA® Vanta™ 16 MB AGP 2D/3D Graphics Accelerator Standard (GeForce™3 64 MB DDR AGP Option)
- ▶ Available with Microsoft® Windows® 2000 and WindowsNT® 4.0 Operating Systems
- ▶ "Master Channel" Option with Server Class Dual 10/100 Ethernet NICs, 300W Auto-sensing Power Supply and Enhanced 3D PC Audio Option
- ▶ 24 and 40U Rack Options, for 5 or 9 systems respectively, with International Power Distribution Unit, GarrettCom™ Magnum 4k8 10/100 Ethernet Switch, KV/M, Cabling and Shipping Crate

AALCHEMY GRAPHICS SUBSYSTEM FEATURES

- ▶ Quantum3D Parallel Rendering Architecture™ (PRA) with 8 or 16 x 3dfx® VSA-100™ graphics chips with up to 1 GB of Dedicated Graphics Memory and 42.5 GB/Sec of Dedicated Graphics Memory Bandwidth to Deliver Unmatched Realtime 3D Performance and Image Quality
- ▶ Support for 2 Realtime 3D channels per system on 8464DC model
- ▶ Support for SwapLock™, SyncLock™ and FrameLock™ Precision Inter-channel Synchronization
- ▶ Optional Q-Sync™ External Synchronization Module for "Genlocking" to Legacy Image Generators and Other External Sync Sources
- ▶ Application transparent, T-Buffer-based single-pass, full-scene anti-aliasing with 4 or 8 sub-pixel rotated grid samples per pixel
- ▶ Support for single, double and triple-buffered rendering
- ▶ Support for alpha blending, alpha buffering, transparency & chroma-key capabilities
- ▶ Support for up to 9 levels of screen door transparency for Fade LOD (depending on model, settings and scene manager)
- ▶ Support for per-pixel atmospheric effects, including non-linear, table-driven fog with simultaneous alpha blending
- ▶ Support for perspective correct bilinear, trilinear and selective anisotropic texture filtering with per-pixel LOD MIP mapping with Gouraud modulated, detailed and projected textures
- ▶ Patent pending "Performance Trilinear™" rendering provides enhanced pixel fill rate while maintaining full scene anti-aliasing image quality and single pass multi-texturing of trilinear mipmap filtered textures for high quality detail texture mapping, use of projected textures, etc.
- ▶ Sustained polygon throughput greater than 1.5M textured, independent triangles per second (based on RWB gvt; also supports triangle meshes for higher levels of sustained polygon performance) 10-bit accuracy Gamma Corrected output in all modes
- ▶ Support for popular texture formats including on-chip support for 3dfx FXT1™ (4-bpt) and (YIQ) compressed texture formats enables on-board texture storage of up to 128 and peak texture paging rates of up to 266 Megatexels/sec (depending on model)
- ▶ Support for high-resolution texture maps (any size, up to 2048 x 2048 texels) for geo-specific mission rehearsal applications
- ▶ Support for popular realtime file formats including Terrex™ TerraVista™, TerraPage™ and OpenFlight™ and 3D scene management software
- ▶ Flexible rendering support (see chart):

AALCHEMY STANDARD & JVC DISPLAY RESOLUTION AND REFRESH RATES						
Resolution	50 Hz	60 Hz	70 Hz	72 Hz	75 Hz	85 Hz
640 x 800		X		X	X	X
800 x 600	X	X		X	X	X
960 x 720		X			X	X
1024 x 768	X	X	X		X	X
1024 x 1024	X	X			X	X
1152 x 864		X	X		X	X
1280 x 768 (16:9)		X				
1280 x 960		X			X	X
1280 x 1024	X	X			X	X
1360 x 1024*		X				
1600 x 1200		X				

*JVC Bundles Only. Custom Resolutions and Timings are also available. Consult factory for details.

ITEM	22-BPP MODE	30-BPP MODE
Component Color	7/8/7 (RGB)	10/10/10 (RGB)
Depth Buffer	16-bit FP Z or W	24-bpp INT or FP Z or W
Stencil Buffer	N/A	8-bpp Stencil Buffer
Alpha Mode	8-bpp Alpha Blending	8-bpp Alpha Blending + 8-bpp Alpha Buffer



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SYSTEM CAPABILITIES

AALCHEMY™ SX

Full-Scene, Sub-pixel Anti-Aliasing	4 or 8 Sub-pixel Sample, Rotated Grid
Inter-Channel Synchronization	<ul style="list-style-type: none"> • SyncLock™ Hardware Precision (Pixel Level) Synchronization (up to 32 channels) • SwapLock™ Vertical Retrace Synchronization • FrameLock™ Frame Synchronization (requires scene manager support)
External Synchronization Option	Q-Sync™ Optional on Visual Channel Configuration (installs in bay in rear of chassis)
Sensor Post Processor Option	nVSensor™ Optional on Visual Channel Configuration (requires available, adjacent PCI slot)
Master Configuration Option	Available without AA5 Graphics Subsystem. Includes Dual Ethernet NICs, 300W Power Supply
2D/3D Graphics Options	<ul style="list-style-type: none"> • NVIDIA Vanta 16 MB AGP Standard • NVIDIA GeForce3 64 MB DDR AGP Optional
Graphics API Support	<ul style="list-style-type: none"> • NVIDIA-based 2D/3D Graphics Subsystems: Windows 2D Support with OpenGL® 1.3 API and Microsoft DirectX8 3D • AA5 Graphics Subsystem: 3dfx Glide™ and Quantum3D SimGL™ * • nVSensor™ Sensor Post Processors: nVSensor API for Sensor Special Effects; Quantum3D SimGL and 3dfx Glide for Reticle and Symbology Overlays
Realtime 3D Scene Manager Support	<ul style="list-style-type: none"> • CATI X-IG • CG2 VTree & Mantis • Corys/TESS • Lockheed Martin S/E View • MetaVR VRGS (Windows 2000 models only on 2D/3D Graphics Subsystem) • MultiGen-Paradigm, Inc. Vega and Options • Quantum3D OpenGVS™ (runtime included with system) • SDS Int'l. LiteFlite • Soft Reality SoftVR • Thales Training and Simulation Space Magic
Chassis	Ruggedized, 4U 19" rack mountable extended ATX chassis
Power Supply	<ul style="list-style-type: none"> • 600W, Auto-sensing, 50/60 Hz, 90-240 VAC with Cooling Fan Standard on Visual Channels • 300W, Auto-sensing, 50/60 Hz, 90-240 VAC with Cooling Fan Standard on Master Channels • Retention mechanism for add-in boards and I/O cables
Drive Bays	<ul style="list-style-type: none"> • 1 x 3.5" Floppy Drive Bay • 3 x 5.25" External Accessible Shock Mounted Drive Bays (CD-ROM and 2 Hard Drives)
Motherboard and Processors	<ul style="list-style-type: none"> • Extended ATX Socket 370 Motherboard with Dual, Independent PCI-66 MHz System Busses • 2 x Intel® Socket 370 Processors • 1 GHz MHz Standard on all Configurations
Memory Type & Configurations	<ul style="list-style-type: none"> • PC-133 Registered SDRAM (ECC): 4 DIMM Slots • 256 MB Standard on All Configurations • 512 MB, 1 GB, 2 GB Options
Operating Systems Options	<ul style="list-style-type: none"> • Microsoft® Windows 2000 Standard • Microsoft Windows NT 4.0 Workstation Available Optionally
Disk Drive Interfaces	<ul style="list-style-type: none"> • EIDE ATA/100 Standard on OTW Visual Channels and Master Channels • Ultra SCSI-160 Standard on nVSensor Equipped Models and Available Optionally on All Models
Hard Disk Drive Options	<ul style="list-style-type: none"> • 1 x Removable 40+ GB EIDE ATA-100 7200 RPM HDD Standard • Upgrade to Removable 36+ GB Ultra SCSI-160 10,000 RPM HDD Available Optionally (Standard on Systems Equipped with nVSensor Option) • 2nd Removable HDD (ATA-100 or Ultra SCSI-160) Optional
Floppy Disk Drive	3.5" 1.44 MB EIDE Floppy Drive Standard
CD-ROM, CD-RW and DVD-ROM	<ul style="list-style-type: none"> • 48x CD-ROM Standard • Optional EIDE ATAPI CD-RW or EIDE ATAPI DVD-ROM
10/100 BASE-T Ethernet	<ul style="list-style-type: none"> • 1 x Server Class 10/100 PCI NIC Standard • Server Class 10/100 PCI NIC Included in Master Configuration
Audio	<ul style="list-style-type: none"> • Ensoniq PC-97 Standard • SoundBlaster 128 Live PCI Optional
Available PC-I/O and Add-in Card Slots	<ul style="list-style-type: none"> • 1 x PIO, 2 x SIO, 2 x USB, Game Port, PS2 Mouse & PS2 Keyboard • AA5 82xx, 84xx (see chart): 1 x PCI/ISA • Master Configuration: 2 x PCI, 1 x PCI/ISA
Environmental Specifications	<ul style="list-style-type: none"> • Ambient Operating Temp: 10 - 30° C (50 - 86° F), non condensing • Operating Shock: = 2 G (2ms @ 1/2 sine wave) • Operating Vibration: = 0.25 G (3.5-500 Hz sine sweep, 0 to peak) • Dimensions: 17" W x 21.5" D x 7" H (42.88 cm W x 54.61 cm D x 17.78 cm H) • Shipping Container 25.5" W x 29" D x 17.5" H ; Shipping Weight: < 60 lbs (20.5 kg) • System Weight: 45 - 50 lbs (18.2 kg);
Rack Options	24U, 40U Standard Heights for 5 or 9 Systems with Appropriate Connectivity Kits (K/V/M with Cabling, GarrettCom Magnum 4k8 Ethernet Switch, Intra-rack Cabling) and Shipping Crate (other configs. available optionally)
Warranty	<ul style="list-style-type: none"> • 1 Year, Return to Factory Standard • Multi-year, Extended Warranty Optional

GRAPHICS SUBSYSTEM	GRAPHICS MEMORY/CH	GRAPHICS BANDWIDTH/CHANNEL	TRILINEAR 4 SPS FSAA FILL RATE/CHANNEL (PT)	ON BOARD TEXTURE STORAGE FXT1	NUMBER OF CHANNELS
8232SB	256 MB	21.3 GB / Sec	477 MegaPixels / Sec	57 MegaTextels	1
8264SB	512 MB	21.3 GB / Sec	477 MegaPixels / Sec	116 MegaTextels	1
8264DC	512 MB	21.3 GB / Sec	477 MegaPixels / Sec	116 MegaTextels	2
8464DB	1024 MB	42.5 GB / Sec	887 MegaPixels / Sec	124 MegaTextels	1

