GaGe

Instrument Mainframe 4000 is a high quality enclosure featuring dual-CPU with dual-core Xeon processors for Board-Level Instruments such as CompuScope and CompuGen cards from GaGe.

Using an Instrument Mainframe 4000 in combination with one or more CompuScope and CompuGen cards, users can create Measurement Systems tailored to their application requirements.

Instrument Mainframe 4000

Industrial-grade PC for CompuScope and CompuGen cards

Instrument mainframe designed for CompuScope and CompuGen cards, where the highest PCI throughput and CPU processing power is required.

FEATURES

- Up to 5 PCI-X slot capability
- Redundant card retainers
- High quality, 500 Watt power supply
- Forced air cooling
- Shock mounted drive bay
- 19" rackmount option
- Qualified Server type motherboard
- Equipped with Windows XP Professional

INSTRUMENT MAINFRAME

Instrument Mainframe 4000 is a high-quality enclosure featuring embedded Xeon processors for instrument cards such as GaGe's CompuScope and CompuGen cards.

Using an Instrument Mainframe 4000 in combination with one or more CompuScope and CompuGen cards, users can create Measurement Systems tailored to their application requirements.

POWER SUPPLY

It is no secret that the integrity of measurements any instrument can make depends heavily on the quality of the power supply built into the instrument. While most CompuScope and CompuGen cards are designed to have a relatively high Power Supply Rejection Ratio (PSRR) for band-limited noise, it is always better not to inject this noise in the first place.

A high quality, low noise power supply is used to power the Instrument Mainframe 4000, which allows instrument cards such as CompuScope cards to deliver Signal-to-Noise Ratio (SNRs) in excess of 75 dB.

FORCED AIR COOLING

Electronic circuits are designed to operate within a certain operating temperature range. If the ambient temperature exceeds this range, analog amplifiers can start to exhibit non-linear behavior which can lead to reduced accuracy, higher signal distortion and, in the worst case, malfunction.

In order to provide clean conversion of analog data to digital data and vice-versa, most CompuScope and CompuGen cards contain high power analog amplifiers and data converters that can create a heat pocket within the enclosure unless proper measures are taken to control the temperature.

One of the best known ways of controlling the ambient temperature around an electronic circuit is through forced air convection. Air from outside the chassis is sucked into the chassis, blown over the heat generating components and then expelled from the chassis.

Instrument Mainframe 4000 features at least 100 Cubic Feet per Minute (CFM) of forced air convection, which is sufficient to dissipate heat from as many as 5 CompuScope and CompuGen cards plugged into the mainframe.

REDUNDANT CARD RETAINERS

All CompuScope and CompuGen cards are full length cards which plug into the bus connector and normally are screwed to the chassis only by the backplate screw. When a customer purchases an IM4000 GaGe System engineers ensure that GaGe cards are additionally secured by back-end card retention brackets.

This redundancy in retaining the cards provides tremendous improvement in mechanical ruggedness of the entire instrument, particularly for mobile applications and during transport.

QUALIFIED PCI-X MOTHERBOARD

Instrument Mainframe 4000 has been qualified by GaGe engineers for compliance to PCI-X specifications, compatibility with CompuScope and CompuGen cards and even for fast sustained data throughput from PCI card to host memory.

Sustained throughput measurements are almost never made by manufacturers of desktop and Industrial PCs. The spec most often touted by these vendors is 264 MB/s, which is actually the data transfer speed for a burst of less than 1 KB of data.

For sustained throughput measurement, the time required to set up PCI bus-mastering data transfer must be taken into account. As a result, 264 MB/s is an impossible number for the sustained PCI bus transfer speed. Typically, the PCI-X throughput of the IM4000 exceeds 200 MB/s since GaGe engineers only qualify Server Class Mother Boards which meet the 200 MB/s requirement.

EMBEDDED XEON PROCESSOR

At the heart of an Instrument Mainframe 4000 is a dual-core Xeon processor. A second dual-core Xeon CPU with additional 1 GB RAM is an available option for computationally intensive applications. As a result, the IM4000 offers one of the most powerful CPUs for data processing that is available in a Instrument Mainframe chassis.

RUGGEDIZED CHASSIS

All models are housed in a rackmountable chassis with stainless steel construction, redundant card retention, shock mounted drive bays and a lockable front panel.

Instrument card cage also features a hold-down bar, front-end card retention using standard mounting panels and back-end card retention using a custom designed mounting bracket.
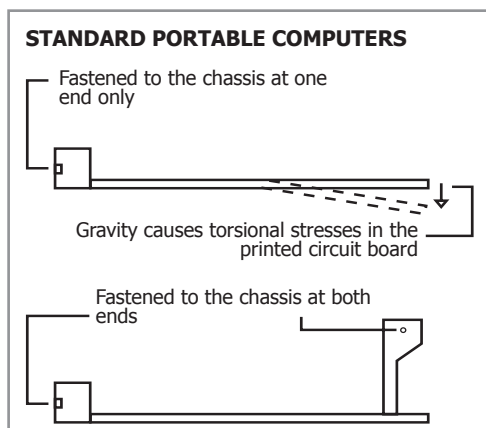
LOCKABLE FRONT PANEL

The Instrument Mainframe 4000 family features a lockable front panel that blocks access to the power switch, the reset switch and all external drives.

SYSTEM MEMORY

The Instrument Mainframe 4000 comes with 1 GB of RAM.

OPERATING SYSTEMS

The Instrument Mainframe 4000 comes standard with Windows XP Professional.

STANDARD PORTABLE COMPUTERS

Fastened to the chassis at one end only

Gravity causes torsional stresses in the printed circuit board

Fastened to the chassis at both ends

CHASSIS

Height:	7 inches
Width:	19 inches
Depth:	17.8 inches
Weight:	39.5 lbs (17.0 kg) (without instrument cards)
Number of Usable Slots:	5 PCI-X/1 PCI
AC Input:	110/220 V built-in
AC Frequency:	47/63 Hz
Power Switch:	On/off (front access)
Rack Mounting:	Optional 19-inch
Operating Temperature:	10°C to 40°C
Humidity:	10-90%, Non-condensing
Forced Air Convection Cooling CFM (Cubic Feet per Minute):	100 CFM

POWER SUPPLY

AC Input Voltage:	90 - 264 VAC full range, 500 Watt

EMBEDDED XEON

GaGe reserves the right to change the embedded processor in order to provide state-of-the-art Technology.

Processor:	Dual-core Intel® Xeon™ 2.8 GHz, 800 MHz FSB
System Memory:	1 GB (2 GB with second CPU)
Parallel Port:	One
Serial Port:	Two
Keyboard Port:	One PS/2
Mouse Port:	One PS/2
Video:	ATI® Rage™ XL PCI controller, 8 MB frame buffer
Resolution:	1024 x 768 external video output
Floppy:	One 1.44 MB, 3.5" IBM-compatible drive
DVD ROM:	Internal Read/Write
Hard Disk:	250 GB

EXTERNAL CONNECTORS

Rear Access Parallel Port:	DB25 (optional)
Serial Port:	Two DB9
USB Port:	2 front, 2 rear
Ethernet Connection:	Dual 10/100/1000 Gigabit Ethernet LANs
AC Power:	3 pin (one grounded)
Keyboard:	PS/2 (6 pin DIN)
Mouse:	PS/2 (6 pin DIN)

INPUT DEVICES

Keyboard:	101-key keyboard
Mouse:	Microsoft PS/2 optical

EXTERNAL MONITOR

Dimensions:	17 inch LCD
Resolution:	1024 x 768

OPERATING SYSTEMS

Standard:	Windows XP Professional

MATERIALS SUPPLIED

One Instrument Mainframe 4000

Mouse

Keyboard

Driver Disks and manuals for in-system peripherals and operating systems

WARRANTY

One year parts and labor

Please note: Mainframe specifications are subject to change without notice.

GaGe

ORDERING INFORMATION

Instrument Mainframe 4000   400-400-001

Operating Systems
Windows XP Professional   Included

Options
Rackmount Slides   480-100-004
Second Dual-core Intel Xeon   480-100-005
2.8 GHz processor with 1 GB of RAM
1U Rackmount 17" Monitor/Keyboard   490-001-004
Rackmount Keyboard   490-001-003

System configuration & verification   Included

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