Instrument Mainframe 2020E is a high quality enclosure featuring embedded Pentium class processors for PCI Instruments such as CompuScope and CompuGen cards from GaGe.

Using an Instrument Mainframe 2020E in combination with one or more CompuScope and CompuGen cards, users can create Measurement Systems tailored to their application requirements.

Instrument Mainframe 2020E

Industrial-grade PC for CompuScope and CompuGen cards

Instrument mainframe designed for critical applications of CompuScope and CompuGen cards, primarily in large channel count and turnkey test systems.

FEATURES

- 18 PCI slot capability (20 including SBC slots)
- Redundant card retainers
- High quality, 800 Watt power supply
- 128 CFM forced air cooling
- Shock mounted drive bay
- 19” rackmount option
- Qualified PICMG PCI Backplane
- Equipped with Windows XP Professional

INSTRUMENT MAINFRAME

Instrument Mainframe 2020E is a high-quality enclosure featuring embedded Pentium processors for instrument cards such as GaGe's CompuScope and CompuGen cards.

Using an Instrument Mainframe 2020E 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 2020E, 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.

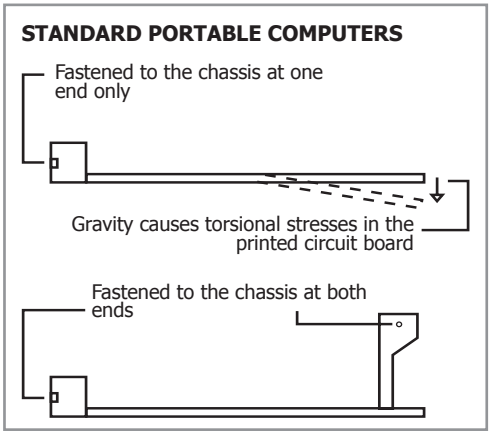
In order to provide clean conversion of analog data to digital data and vice-versa, most CompuScope and CompuGen cards contain high power analog amplifiers and data converters that can create a heat pocket within the enclosure unless proper measures are taken to control the temperature.

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 2020E features at least 128 Cubic Feet per Minute (CFM) of forced air convection, which is sufficient to dissipate heat from as many as 16 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 IMF2020E 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 BACKPLANE

Instrument Mainframe 2020E includes a PCI/ISA bus backplane, which has already been qualified by GaGe engineers for compliance to PICMG PCI 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 132 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, 132 MB/s is an impossible number for the sustained PCI bus transfer speed. Typically, the PCI throughput of the IM2020E exceeds 100 MB/s since GaGe engineers only qualify Processor Cards which meet the 100 MB/s requirement.

EMBEDDED PENTIUM IV PROCESSOR

At the heart of an Instrument Mainframe 2020E is a Pentium class processor. In order to provide the most robust system, the Instrument Mainframe 2020E uses Pentium processors from the Intel Embedded roadmap.

This conservative approach to component selection rules out any nasty surprises which could result from bugs in Intel's first generation silicon.

RUGGEDIZED CHASSIS

All models are housed in a rackmountable chassis with 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 2020E features a lockable front panel that blocks access to the power switch, the reset switch and all external drives.

SYSTEM MEMORY

The Instrument Mainframe 2020E comes with 1 GB of RAM.

OPERATING SYSTEMS

The Instrument Mainframe 2020E comes standard with Windows XP Professional.

CHASSIS

Height:	10.5 inches
Width:	19 inches
Depth:	19.75 inches
Weight:	50 lbs (without instrument cards)
Number of Usable Slots:	18 PCI / 1 ISA
AC Input:	110/220 V Switchable
AC Frequency:	50/60 Hz
Power Switch:	On/off (front access)
Rack Mounting:	Optional 19-inch rackmount slides
Operating Temperature:	10°C to 50°C
Humidity:	5-95%, Non-condensing
Forced Air Convection Cooling	
CFM (Cubic Feet per Minute):	200 CFM

POWER SUPPLY

AC Input Voltage:	95 - 132 Volts, or 170 - 264 Volts; auto switching
Mainframe 2020E:	800 Watt
Safety:	UL 1950, CSA 22.2 NO/950, TÜV IEC950

EMBEDDED PENTIUM

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

Processor:	Pentium Class
System Memory:	1 GB (2x 512 MB DDR 533 MHz)
Parallel Port:	One
Serial Port:	Two
Keyboard Port:	One PS/2
Mouse Port:	One PS/2
Video:	Intel 82915 GV chipset
Resolution:	Analog support up to 2048 x 1536 at 85 Hz
Floppy:	One 1.44 MB, 3.5" IBM-compatible drive
DVD Drive:	Internal DVD R/W
Hard Disk:	320 GB

EXTERNAL CONNECTORS

Rear Access Parallel Port:	DB25
Serial Port:	Two DB9
USB Port:	4 external
Ethernet Connection:	2 Gigabit LAN
AC Power:	3 pin (one grounded)
Keyboard:	PS/2 (mini DIN)
Mouse:	PS/2 (mini DIN)

INPUT DEVICES

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

EXTERNAL MONITOR

Dimensions:	17 inch
Resolution:	1024 x 768
Format:	LCD flat or better panel

OPERATING SYSTEMS

Standard:	Windows XP

MATERIALS SUPPLIED

One Instrument Mainframe 2020E

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 2020E	400-586-208
Operating Systems	
Windows XP Professional	Included
Options	
Rackmount Slides	480-100-004
1U Rackmount 17" Monitor/Keyboard	490-001-004
Rackmount Keyboard	490-001-003
System configuration & verification	Included

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