

# Instrument Mainframe 7000

## Portable Instrument Mainframe Designed for CompuScope and CompuGen Cards

Instrument Mainframe 7000 is a high quality platform for the portable use of CompuScope and CompuGen Instrument cards

- ◆ Built-in 12.1" Color LCD Screen
- ◆ Detachable Keyboard and Mouse
- ◆ 3 PCI and 1 ISA Full Length Slots
- ◆ IMF7K Card Retention Mechanism
- ◆ Extra Wide Slot Opening
- ◆ High Quality, 300 Watt Power Supply
- ◆ Qualified PCI Motherboard
- ◆ Embedded 600 MHz Pentium III
- ◆ Compatible with Windows 95, 98, ME, NT and 2000



### INSTRUMENT MAINFRAME 7000

Instrument Mainframe 7000 is a high quality portable enclosure for CompuScope and CompuGen cards.

Features include a built-in 12.1 inch active matrix LCD screen, a detachable 105-key ergonomic keyboard, an integrated touch pad pointing device, a drive bay capable of housing five storage devices, a 300W power supply and an ATX form factor Pentium III motherboard.

Using an Instrument Mainframe 7000 in combination with one or more CompuScope and CompuGen cards, users can create portable Advanced Measurement Systems with previously unheard of capabilities.

### EXTRA WIDE ACCESS FOR INSTRUMENT CONNECTORS

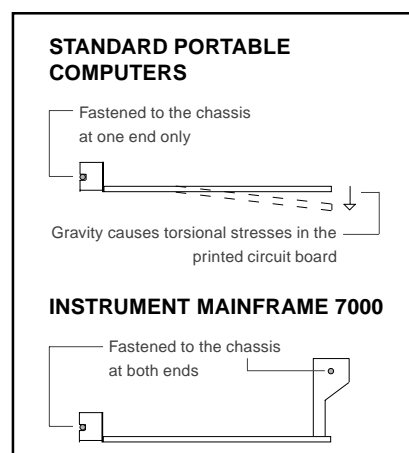
Mainframe 7000 allows all instrument connectors on CompuScope or CompuGen cards to be easily accessible from the side panel of the mainframe.

To make it easier than ever to attach and detach cables and probes to the instrument connectors, the slot openings in the chassis have been made wider by 0.150 inch.

### IMF7K CARD RETENTION MECHANISM

Inside the Mainframe 7000, all full length CompuScope and CompuGen cards plug into the bus connector and get fastened to the chassis in at least two places.

This card retention mechanism is unique to the Mainframe 7000 and differentiates it from all other portable computers by providing tremendous improvement in mechanical ruggedness of the entire instrument.



This is made even more important since the back-end of CompuScope and CompuGen cards usually feature a fairly heavy DC-DC converter which can create a substantial moment of inertia due to mechanical vibrations experienced by the instrument system during transportation as well as during use.

The extra brackets are secured to the chassis using a single screw mounted on the drive bay.

A hold-down bar mounted across the card cage provides even more mechanical stability.

### QUALIFIED PCI MOTHERBOARDS

Instrument Mainframe 7000 includes a PCI/ISA bus, ATX form factor motherboard. This motherboard has already been qualified by Gage engineers for compliance to PCI specifications, compatibility with CompuScope and CompuGen cards and even for sustained data throughput from PCI card to host memory.

Sustained throughput measurements are almost never made by manufacturers of desktop and Industrial PCs. The specification most often touted by these vendors is 132 MB/s, which is the data transfer speed for a burst of less than 1 KB. Any PCI bus device that wants to DMA data to or from another device, such as host memory, must

- ask the bus arbiter for becoming a bus master
- become a bus master
- do the 1 KB (or shorter) transfer
- give up the bus back to the arbiter
- repeat the sequence until DMA is completed

For sustained throughput measurement, the time taken for all these tasks must be taken into account. As such, 132 MB/s is an impossible number for sustained bus transfer speed.

Gage provides a measured data throughput specification with each Instrument Mainframe 7000. Typically, this number exceeds 100 MB/s since Gage engineers only qualify motherboards that meet the 100 MB/s requirement.

### EMBEDDED PENTIUM III PROCESSOR

At the heart of an Instrument Mainframe 7000 is a Pentium III processor. In order to provide the most robust system, Mainframe 7000 uses Pentium processors just one step behind the latest offering from Intel Corporation.

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

### BUILT-IN LCD DISPLAY

One of the unique features of Instrument Mainframe 7000 is its built-in TFT (Thin Film Transistor) LCD (Liquid Crystal Display) screen. Unlike passive LCDs, TFT type displays provide fast screen refreshes and a crisp, bright display.

### EXTERNAL VIDEO

For applications which require either a larger display unit, an external monitor or a projector, the SVGA output of the Instrument Mainframe 7000 can be used.

This output can drive monitors with a resolution of up to 800 x 600.

### NUMBER OF SLOTS

Instrument Mainframe 7000 features 3 PCI and 1 ISA slot accessible from the side panel.

All Gage CompuScope and CompuGen

cards, as well as most third-party PCI and ISA compliant cards, will work in Instrument Mainframe 7000.

Care should be taken in not over-populating the Instrument Mainframe 7000. The exact number of cards that can be installed depends upon the power consumption specifications of that particular unit.

### COMPATIBILITY

Mainframe 7000 is shipped with Windows NT as the standard operating system.

All operating systems designed to work with the Pentium III processor are fully compatible with Instrument Mainframe 7000. These include Windows 95/98, Windows ME and Windows 2000.

### 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 power supply is used to power Mainframe 7000, which allows instrument cards such as CompuScopes to deliver signal to noise ratio 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 ac-

curacy, higher signal distortion and, in the worst case, malfunction.

In order to provide clean data conversion from analog to digital and vice-versa, most CompuScope and CompuGen cards contain high power analog amplifiers and data converters which 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 exited. If enough air can be convected, ambient temperature can be controlled.

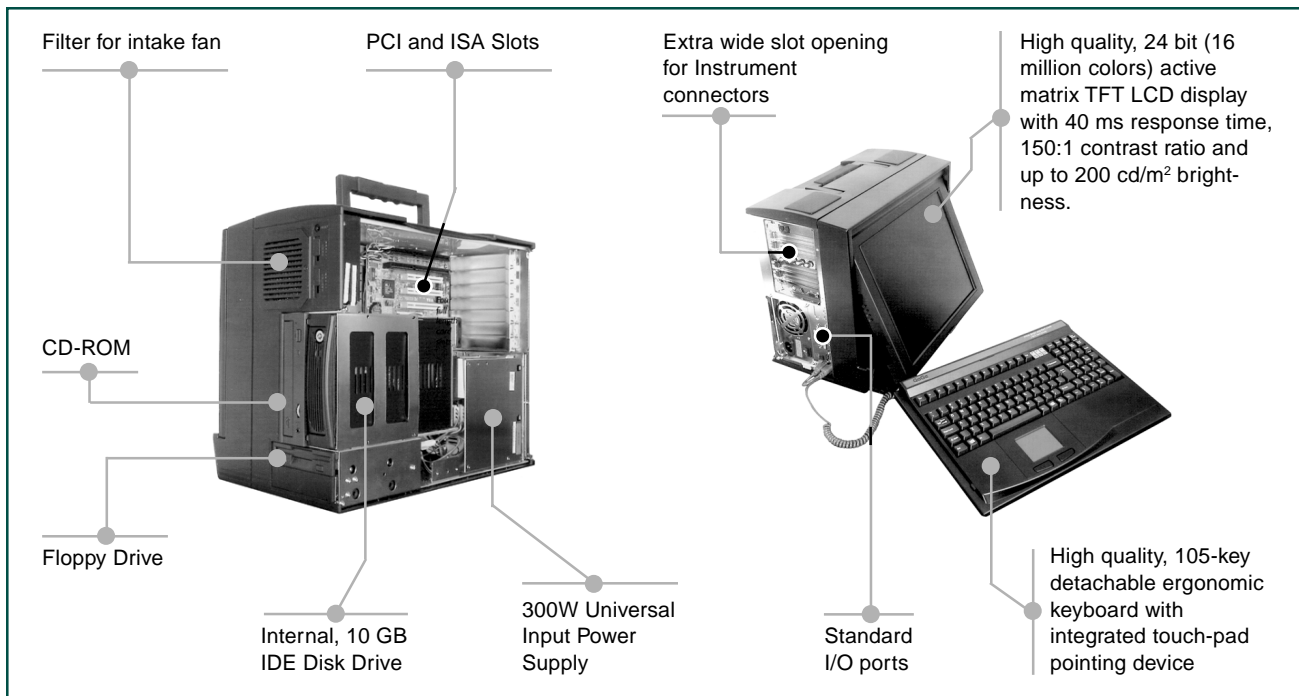
### SOFT SIDED CARRYING CASE

Instrument Mainframe 7000 comes standard with a rugged woven nylon case with high density foam padding. Also included are wheels and a telescopic handle for easy maneuvering.



### OPTIONAL AIR CARGO CASE

A hard shell case with 1.5 inch minimum of high density foam padding is also available. Large wheels and a telescopic handle make it easy to navigate in and out of airports.



# Instrument Mainframe 7000 Specifications

## CHASSIS

Material: Light weight aluminum alloy  
Case: ABS plastic  
Color: Charcoal Black  
Height: 13.25 inches  
Width: 15.75 inches  
Depth: 9.21 inches  
Weight: 30 lbs. fully configured (Not including CompuScope or CompuGen cards)

Operating Temp.: 10°C to 50°C  
Storage Temp: -20°C to 60°C  
Humidity: 10-90%, Non-condensing

## POWER SUPPLY

Input Voltage: 110/220V autoswitching  
Input Freq: 47 to 63 Hz  
Safety Cert.: UL, CUL, CE, FCC, TUV

## SLOTS

*Gage reserves the right to change the motherboard in order to provide state-of-the-art Technology.*

Unused Slots: 1 full length ISA  
3 full length PCI  
3 half length PCI

Compatibility: All ISA and PCI v2.1 bus compliant third-party add-on cards will function in Instrument Mainframe 7000.

## MOTHERBOARD

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

Form Factor: ATX  
Processor: Pentium III  
Speed: 600 MHz or better  
System RAM: 128 MB  
Parallel Port: One  
Serial Port: One  
USB Port: Two  
Keyboard Port: One PS/2  
Mouse Port: One PS/2  
Video Card: ATI Rage Mobile 3D AGP 8MB

## STORAGE DEVICES

Drive Cage: 5 drives  
2 x 5.25" External  
2 x 3.5" External  
1 x 3.5" Internal

Mounting: Shock-mounted  
Floppy Drive: One 1.44 MB, 3.5" IBM-compatible Drive  
Hard Disk: One 10GB or higher EIDE Drive  
CD-ROM: One 40x IDE Read Only

## INPUT DEVICES

Keyboard: 105-key Windows type  
Interface: PS/2  
User Feedback: Mechanical tactile  
Mouse: Touch-pad pointing device integrated into keyboard

## INTERNAL DISPLAY

Type: TFT LCD Active Matrix  
Size: 12.1 inch  
Controls: Backlight and Contrast  
Resolution: 800 x 600, max.  
Response Time: 40 milliseconds

## EXTERNAL DISPLAY OUTPUT

Output Type: Analog SVGA  
Resolution: 800 x 600, max.

## OPERATING SYSTEMS

Standard: Windows NT  
Optional: Windows 2000  
Windows 98

## MATERIALS SUPPLIED

One Instrument Mainframe 7000  
One Nylon Carrying Case  
Operating System Disks & Manuals  
Driver Disks for In-System Peripherals

## WARRANTY

One year parts and labor limited liability, as per warranty policy listed on Gage's web site.

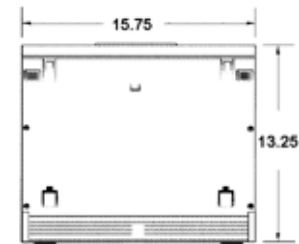
Not available in Europe.

Does not meet EN55011 Class A limits for radiated emissions.

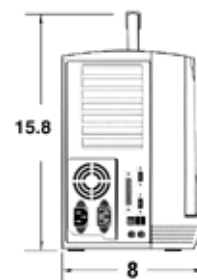
## ORDERING INFORMATION

|  |             |
|--|-------------|
| Mainframe 7000   | 400-720-101 |
| Includes Windows NT  |             |
| Mainframe 7000G  | 400-720-001 |
| Can only be purchased with CompuScope or CompuGen Cards. Includes Windows NT |             |
| Win 2000 Upgrade   | 400-720-050 |
| Win 98 Upgrade   | 400-720-052 |
| IMF7K Cargo Case   | 400-720-060 |

## Dimensions



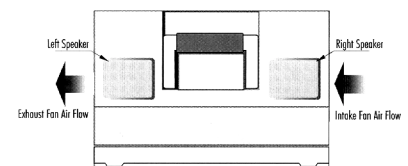
FRONT VIEW



LEFT SIDE VIEW



RIGHT SIDE VIEW



TOP VIEW

INSTRUMENT  
MAINFRAMES

**GAGE**  
A Tektronix Technology Company