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Find the *General Micro Systems V161 "Aurora"* at our website: ***Click HERE***



V161 "Aurora"

VME • PentiumIII with PMC or Dual Card-Bus

- Industrial
- Defense
- Telecom
- Datacom
- Aerospace
- Medical
- Imaging

Features

- Up to 1GHz Pentium®III Processor
- Up to 2GB of Low-Cost SODIMM Memory
- One PMC Slot or Dual Card-Bus
- Dual Video Graphic Engines
- Full Audio Functions & Voice Recognition H/W
- Three 10/100Base-Tx Ethernet Channels
- Quad USB (Std: Three Front, One Rear)
- NEBS III and FCC Class B Approved for Telecom Applications
- Optional Onboard 2.5" Hard Disk Drive
- Optional Triple PMC Expansion Module (2nd Slot)
- Supports VME-64 via Tundra® Universe II
- Support for 5 Row or 3 Row VME Card Cages
- Support for Windows® NT/2000/XP, VxWorks,® Solaris®x86, QNX® and Linux® Operating Systems

Highlights

The V161 "Aurora" from General Micro Systems (GMS) is the first 6U single board computer to combine High-Speed Networking, Audio & Video for Multimedia focused embedded applications. It is the first product on the market to fully utilize the I/O functionality of sub-notebook computer technology while providing the computing power, memory capacity, multi-media facilities, networking, and disk storage expected from full-size computers. The V161 Aurora can function as a high-performance server and is ideal for applications requiring processor horsepower, exceptional bus speed and configurability. The V161 Aurora is a great choice for developing telecom test equipment, call centers, military/aerospace command & control systems, particularly those with tight space constraints that require high-speed video and utilize voice-activated response. It is also the best solution for a variety of diagnostic and training applications.

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DESCRIPTION

Unleashed Power and Realized Potential

The V161 "Aurora" is the industry's first single board computer (SBC) to offer all of the I/O functionality of a sub-notebook while providing the computing power, vast memory and large disk storage of a full size computer.

CPU/Memory

The V161 Aurora is based on the Intel Pentium III with the powerful 440GX chipset. These components are from the Intel Embedded Roadmap, which guarantees a long life cycle. They are also the only ones to support dual bus operation, (AGP and PCI) and provide up to 2GB of SODIMM. The Pentium III processor is available with up to 1GHz clock speed and 256KB of On-Die L2 Cache in a FC-PGA package, which allows easy upgrades and superior cooling to any other package. The Pentium III is connected to two SODIMM modules via the 440GX Northbridge. These two SODIMM modules provide the user with up to 2GB of low-cost, field upgradeable memory, and dual PCI I/O Bus.

Card-Bus or PMC

The V161 Aurora's I/O functions are vast, unique and extremely powerful! The V161 incorporates the Texas Instrument 1451 Card-Bus controller. The Card-Bus technology is an ideal solution for the embedded market. It provides hot-swappable functions without ANY user software, it's extremely inexpensive, has a low power consumption, offers a vast choice of functions and great EMI shielding. The alternate configuration of the V161 supports one PMC site in the position of the Card-Bus.

Multi-Media Functions

Video - The Aurora provides the OEM user-rich multimedia capabilities to improve user interface functions, and reduces system processor overhead. The V161 utilizes the powerful, economical, Asiliant 69030 Dual-Mode integrated video controller. The 69030 device, with its integrated video RAM, supports screen resolutions of 1600 x1200 in 64,000 colors @60Hz in a single display mode, or 1280 x1024 in 256 colors @60Hz in dual display mode. Additional functions include a 64-Bit Single Cycle BitBLT Graphic accelerator, color expansion, instant full screen page flip, a 256 3-Op raster operation graphic accelerator, and many more advanced dual display and accelerator functions.

Audio - The Audio functions of the V161 include Dual Line-Input/Line-Output, Microphone Input, and CD Audio-In. These Line-In/Microphone inputs, with commercially available voice recognition software such as Naturally Speaking™ from Dragon software or ViaVoice from IBM, are an extremely powerful and inexpensive way to replace traditional keyboard/mouse inputs for navigating complex menus and typing. Voice recognition is an ideal solution for Defense; Telecom and Automation applications where the operator must be very proficient with the use of the system and still have their hands free for other uses. Voice Command Systems (VCS) have been proven to be significantly faster to use.

System I/O

The Aurora provides all the legacy system I/O functions in order to support Windows based or Real-Time operating systems. An SMSC FDC37C932APM Ultra/O device is provided for rich I/O functions. This device provides user with two serial I/O ports, Floppy port, Mouse, Keyboard and timers. Additionally, five USB ports are made available, four on the front panel and one rear I/O for a variety of system I/O functions like mouse, keyboard, Compact Flash, camera, modems, etc. Two IDE DMA- 66 ports provide vast choices of mass storage. The IDE primary is connected to an on-board 44-pin IDE connector, which supports 2.5", drives with current capacity of 100 Gigabyte. Yet, it still occupies a single slot. User may also install non-rotating media in this space, for Flash based Operating Systems for rugged, low-power applications. Onboard protection and custom shock mounting for this drive guarantees reliable operation in harsh environments, and prolongs life of the drives. Other System I/O functions include 4MB of system BIOS Flash and user Flash, optional 8MB or 16MB of bootable Disk-On-Chip Flash, and 2KB of EEPROM for VxWorks Boot parameters.

Self-Test/Diagnostics

The V161 has a very detailed diagnostic and failure reporting system. It contains full Power-On-Self-Test (POST) diagnostics, with two binary digit displays on the front panel indicating the status of current POST being executed. Thus if stopped, a user can identify the failure without removing the board from the system chassis. Further, these eight POST LEDs can be accessed by the user application code to indicate the status of current task, which the application software is processing. This helps to improve the application software development time and in final systems, indicating process and service requirements from the user. Further, the onboard 12V, 5V, 3.3V and CPU core voltages, and the CPU core temperature and the baseboard temperature are all monitored constantly. In the event of a failure, these conditions are reported via additional LED indicators on the front panel, and details are

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DESCRIPTION

reported to other VME based health monitoring hardware. To prevent event lockups (application code not responding) a programmable hardware watchdog timer is provided to terminate the current task and provide a system interrupt or reset for the CPU and I/O.

Networking Interface

The V161 Aurora has the most advanced networking and PMC expansion of any VME Single Board Computer. It has a total of three Intel 82559ER 10/100Base-Tx Ethernet controllers. Two of them are routed to rear I/O and may used to support Ethernet Packet Switched Backplane or, they may be used as standard 10/100Base-Tx on the rear I/O panel. These Ethernet Packet Switch Backplane (PSB) allows multiple CPU boards within a VME chassis, as well as multiple chassis, whether CPCI, VME or others, to exchange data among themselves…and do it faster than any VME or CPCI bus. The best part of this technology is that there are NO requirements for any backplane drivers for Operating System specifics, since all OS have Ethernet 802.3 support.

VME Interface

The VME interface for the V161 is provided via the Tundra Universe II device. This device supports all VMED64 Master and Slave modes of operations as well as the System Controller functions. GMS has full software support for this device under VxWorks, Solaris x86, Linux, QNX as well as the highest performing driver for Windows NT/2000/XP in the industry. GMS "VMExpress" is the industry benchmark for VME performance and functionality. Further with the addition of VME/IP, the VME can be transformed into a virtual network, thus eliminating the Big Endian /Little Endian issues. GMS VMExpress is also supported under Venturcom Real Time Extension (RTX). The VME interface of the V161 is carefully designed thus the V161 may be plugged in a 5-Row or 3-Row VME card cage. Onboard regulators provide the 3.3V necessary from the system +5V.

Environmental and Safety

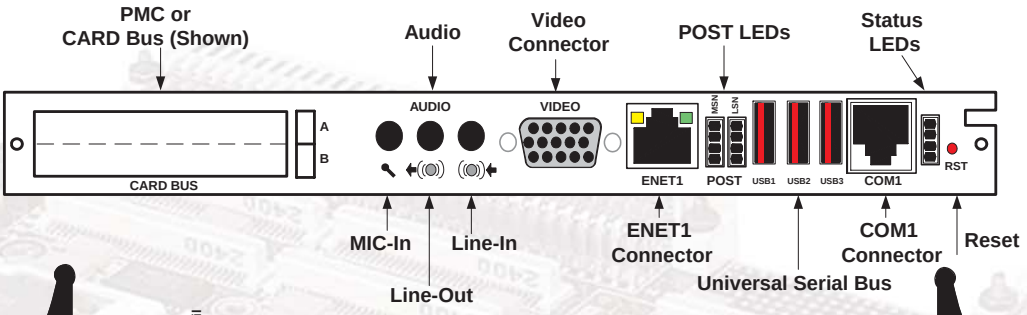
The V161 Aurora is specifically designed to operate in telecom applications where environmental and safety are key issues, whether or not the product can be deployed. The GMS V161 is built to pass IEC 60950: 1995+A4: 1996 and CSA-C22.2 No.950 M95 and ANSI/UL 1950, 3rd edition. NEBS Level III compliance and other FCC, UL certificates are also documented for the V161.

Operating Systems

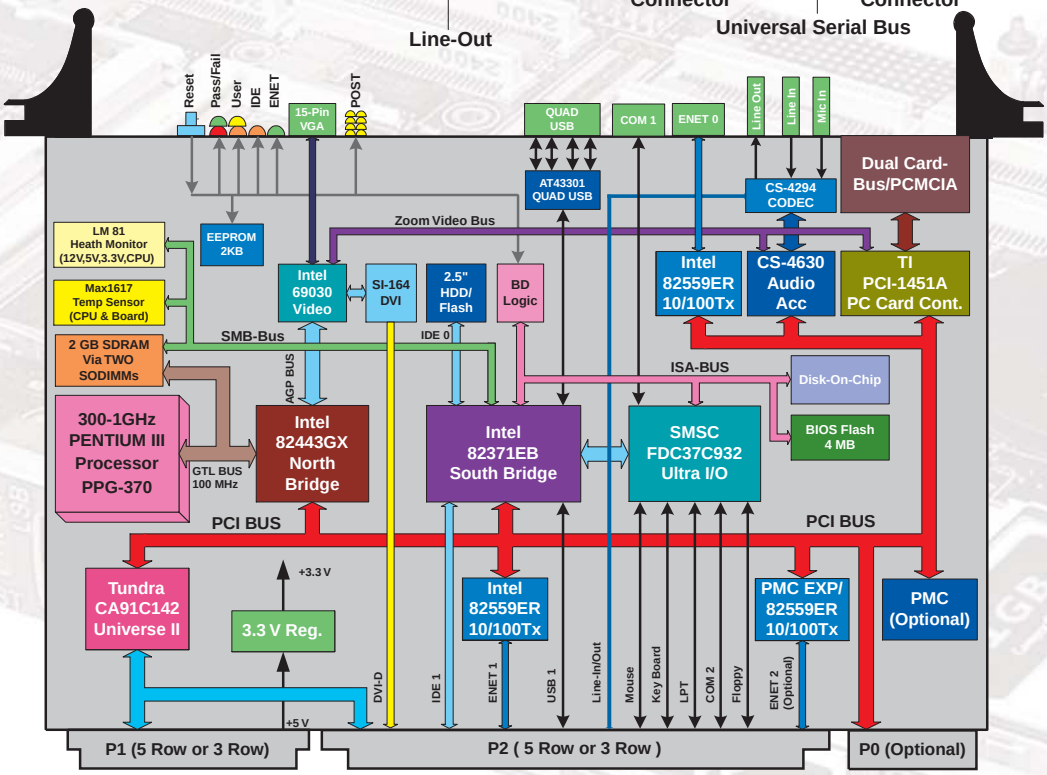
The V161 Aurora is supported under Windows®NT/2000/XP, VxWorks®, Solaris®x86, QNX® and Linux®. Board Support Packages (BSP) support almost every function right out of the box. However, some custom drivers are required to take full advantage of all the I/O functions under VxWorks®, Linux®, and Solaris®. Check with your local GMS representative to see which of the latest I/O drivers are either required or available.

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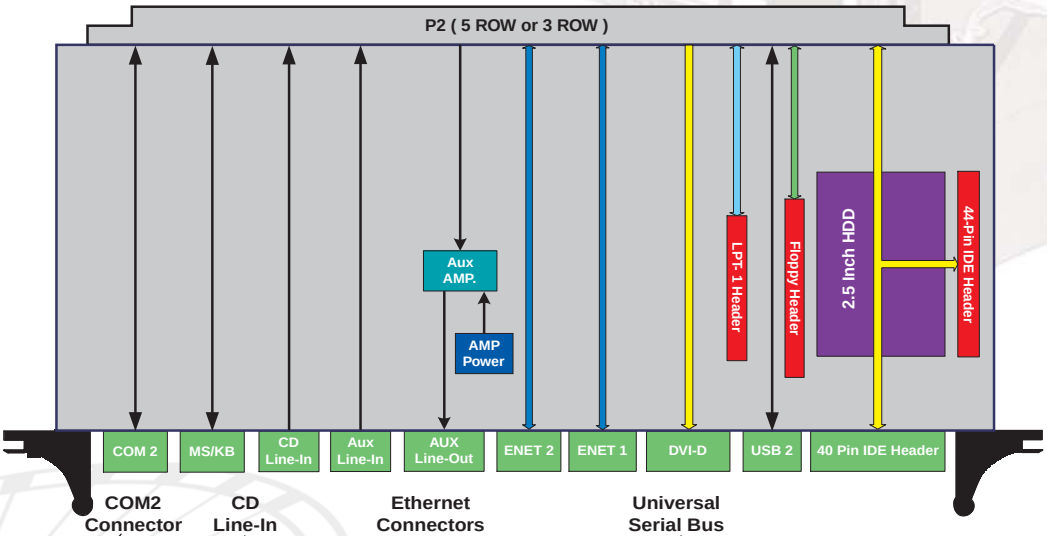
V161 - Front Panel



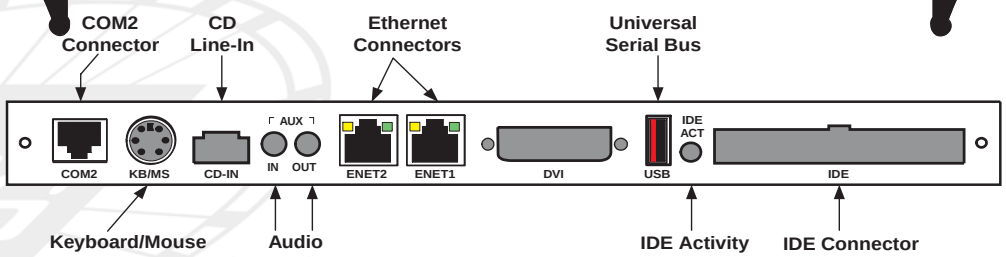
V161 - Block Diagram



V161 - BO Module



V161 - BO Front Panel



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V161

VME • Pentium III with Card-Bus/PMC

DATASHEET

SPECIFICATIONS

Features

- **Processor**
  High Performance Pentium® III processor from 300MHz to 1GHz
  – 256KB of On-Die L2 Cache
- **Memory/Flash**
  – Up to 2GB of 100MHz Memory via Two SODIMM Modules
  – 4MB of System BIOS/User Flash
  – 512B Serial EEPROM
- **Communication**
  – Three 10/100Base-Tx Ethernet (One Front I/O, Two Rear I/O)
  – Four USB Ports (3 Frnt / 1 Rear)
  – Two Comm Ports (1 Frnt / 1 Rear)
- **Counter/Timers**
  Four Counters/One Watchdog Timer
- **User I/O**
  One 32-Bit/33MHz PMC Slot for User I/O or One Dual Card-Bus Slot
- **Full Workstation**
  Dual Ultra IDE DMA-33, Mouse, Keyboard, Real-Time Clock
- **Software Support**
  – Support for Windows®NT/2000/XP, VxWorks®, Solaris®x86, QNX® and Linux® Operating Systems
- **Options**
  – Optional Onboard 2.5" HDD
  – Optional 8MB or16MB Bootable D.O.C. Flash (TSOP soldered-on)
  – Triple PMC Expansion Mod. (2nd slot)
  – Passive Cooling Heat Sink

Physical

- **Form Factor**
  1-Slot, 6U, 4HP Card Assembly
- **Long Axis**:233.35mm
- **Short Axis**:160mm
- **Front Panel Dimensions**
  262.05mm x 20.32mm
- **Size**: 6U, 4HP - Only One CPCI Slot

Electrical

Typical Values@100% Duty Cycle

- **Pentium III CPU 850MHz**
  3.3V/--, 5V/27.0W, 12V/.48W, -12V/.12W
- **Total Power**: 27.6W

Environmental

- **Temperature Range**
  0°C to 50°C
- **Humidity Range (Relative Non-Condensing at 40°C).**
  5% to 90%
- **Altitude Range**
  0 Ft. to 10,000 Ft.
- **Vibration**
  0.01G²/Hz 50-500-Hz Random Vibrations
- **Shock**
  6g, 11msec, 1/2 Sine Wave
- **Required Air Flow**
  400 Min. LFM (Linear Ft. Per Min)
- **MTBF: 232,353 Hours**
  (Per Mil-HDBK-217F-2, Rel. 2002)

V161 Rear Transition Module-RTM (Break-Out) Specifications

Features

- **RTM Front Panel Interfaces**
  – 2 RJ-45, 10/100Base-Tx Ethernet Ports
  – 1 DVI 24-Pin Connector
  – 1 RS232 Com Port via RJ-11C
  – Mouse/Keyboard
  – 1 USB
- **RTM Onboard Interfaces**
  – Floppy, LPT and IDE Headers

GMS Sales Part Number	Description	GMS Mfg. Part Number
	Specify CPU Type/Speed and Memory Size	
V161-CB	V161 - Card-Bus SBC: Full-Up Less CPU, RAM with Dual Card-Bus	95-440-1
V161-PMC	V161 - PMC SBC: Full-Up Less CPU, RAM with One PMC Slot	95-442-1
V161-CB-J0	V161 - Card-Bus SBC: Full-Up Less CPU, RAM with Dual Card-Bus and J0	95-440-0
V161-PMC-J0	V161 - PMC SBC: Full-Up Less CPU, RAM with One PMC Slot and J0	95-442-0
	V161 Options	
V161 B0	V161 Rear Transition Module (Breakout) for enhanced Rear I/O functionality	95-441-0

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