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General Micro Systems, Inc.

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C165 "Miser"



ULTRA LOW COST <$1,000 CompactPCI SM/PM Celeron with PMC

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Key Features
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Key Features:

- 850MHz Celeron Processor with 128KB L2 Cache
- 64MB of Low-Cost SDRAM Memory
- Two 10/100Base-Tx Ethernet (1 Front, 1 Rear)
- One PMC Expansion Slot
- Video Graphic Engine for 1280 x 1024 in 64,000 Colors
- System Master / Peripheral Master Operations
- NEBS III and FCC Approval for Telecom Applications
- Optional Onboard 2.5 inch Hard Disk Drive
- Only ONE CPCI Slot!
- Dual Ultra IDE DMA-33, Two Com Ports, Two USB, Mouse, Keyboard, RTC and AMI Bios
- Support for Windows® NT/2000, VxWorks,® Solaris® x86, QNX® and Linux® Operating Systems
- Utilizes Intel Embedded Chip Set for Long Life Support

Call Factory for Custom Configurations (25 Piece Minimum)

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General Description:

The C165 "Miser" is the industry's first single board computer (SBC) to offer all of the I/O functionality of a full featured SBC for less than $1000 in single piece quantity. The C165 Miser, offers fast computing power, vast memory and large disk storage, PMC for user I/O, Video and networking, all in a standard 6U, 4HP (single slot) form factor. Furthermore, the C165 Miser leverages the latest PICMG standards for Hot Swap specifications for both System Master and Peripheral Master functions.

CPU/Memory
The C165 Miser is configured with the Intel 850MHz Celeron Pentium III and the powerful 440BX 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). The first PCI bus is a 32-Bit, 33MHz bus, which is connected to local PCI devices like Ethernet, and PMC module. The second bus, which is the AGP bus, is another PCI-like bus, which is clocked at 66MHz, and is 32-Bit wide. This bus is used to drive the high bandwidth, demanding of the video display subsystem. The Celeron processor is connected to one SODIMM module via the 440BX Northbridge. The C165 can be configured with 64MB RAM with options for up to 256MB of low cost SODIMM.

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Video - The Miser provides the OEM user-rich video functions. The C165 utilizes the powerful, economical, Asiliant 69030 integrated video controller. While most other CPU designs locate the video device on the CPU main PCI bus, which is tied to all the on-board and off-board PCI devices, the Miser's does not. Miser's 69030 device is connected to the CPU Northbridge via the AGP (Advanced Graphic Port) bus. The AGP bus is clocked at 66MHz, which is twice as fast as the PCI bus. Further, this AGP bus has separate access to the system memory, thus not restricting the host processor access to the main memory. A 15 pin D-Sub connector is used for standard Analog display, using RGB color via front panel. The 69030 device, with its integrated video RAM, supports screen resolutions of 1280 x1024 in 64,000 colors @60Hz. Additional functions include a 64-Bit Single Cycle BitBLT Graphic accelerator.

Networking/CPCI Interface
The C165 Miser has a total of two Intel 82559ER 10/100 Base-Tx Ethernet controllers. One channel is routed to an RJ-45 on the Front Panel for system configuration or to be used as a boot channel. GMS' BIOS has full network-boot support, therefore, the C165 can be booted to any OS without the use of a drive. The second can be used as standard 10/100Base-Tx on the rear I/O. The CPCI interface is accomplished via two separate CPCI bridge devices. One is configured as a System Master and provides the clock and the control functions for other processor boards in a CPCI backplane. The second device is used as a Drawbridge for Peripheral Master functions. When used as a Peripheral Master, the C165 can be put in a drone mode, so that no System Master is needed. In this mode, true redundant systems can be achieved. Onboard diagnostics can automatically be determined if the board installed is in a correct slot by flashing indicators on the front panel.

System I/O
The C165 Miser provides all the legacy system I/O functions in order to support Windows based or Real-Time operating systems. An SMSC FDC37C932APM Ultra I/O device is provided for rich I/O functions. This device provides users with two serial I/O Ports, Mouse, Keyboard and Timers. Additionally, two USB ports are made available, one on the front panel and one rear I/O for a variety of system I/O functions like Mouse, Keyboard, CompactFlash, Camera, Modem, etc. Two IDE DMA-33 ports provide vast choices of mass storage. The IDE primary is connected to an onboard 44-pin IDE connector, which supports 2.5" Hard Disk Drives. Yet, this board still occupies only 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 and 2KB of EEPROM for VxWorks Boot parameters.

The C165 Miser 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.

Environmental and Safety
The C165 Miser 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 C165 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 C165.

Operating Systems
The C165 Miser is supported under Windows®NT/2000, 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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Ordering Information:

C165 Miser SM/PM, Pentium III (Celeron) with PMC			
GMS Sales Part Number	Description	GMS Mfg. Part Number	Availability

	The C165 is a Low Cost Hot Swappable Peripheral Master or System Master CPU Board. The C165 utilizes the 850MHz Celeron Processor with 100MHz FSB and 128KB of On-Die L2 Cache. 64MB with Options for Up to 256MB of Low Cost SODIMM and Highly User-Configurable Custom I/O via One PMC Slot. Standard Functions Include: Two 10/100Base-Tx Ethernet Ports, One Configured for Rear I/O, One via Front Panel, Video, 4MB of Bios / User Flash, Dual IDE DMA-33, Dual Serial Ports, Dual USB Ports, Real-Time Clock/Calendar, Mouse/Keyboard Ports and 512B of Serial ROM for VxWorks Boot Parameters. All modules are shipped with AMI Flash Bios, AMI Diag and Power-On-Self-Test (POST) LED's, CPCI J1, J2, and J3 Connectors, Passive Cooling. Specify Options. Custom Configurations require a Minimum of 25 Piece Order.		
	SPECIFY MEMORY SIZE FOR OPTIONS		
C165-SM	**C165 System Master SBC with:** Full-Up with 850MHz Celeron, One PMC Site, 64MB RAM	95-470-0	Call
C165-PM	**C165 Peripheral Master SBC with:** Full-Up with 850MHz Celeron, One PMC Site, 64MB RAM	95-471-0	
	C165 Options		
C165BO	80MM with J3 Connector Transition Module. Accommodations for One 10/100Base-Tx Ethernet Port via RJ-45, One Com Port via RJ-11C, Mouse/Kb, and USB Connector via Front Panel, 40 Pin Header.	95-472-0	
RJ11C 2DB9-MODEM	RJ-11C to Female DB9 Adaptor and 7' Cable for Modem Emulation	71-090-0	
RJ11C 2DB9-PC	RJ-11C to Male DB9 Adaptor and 7' Cable for PC Emulation	71-093-0	

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