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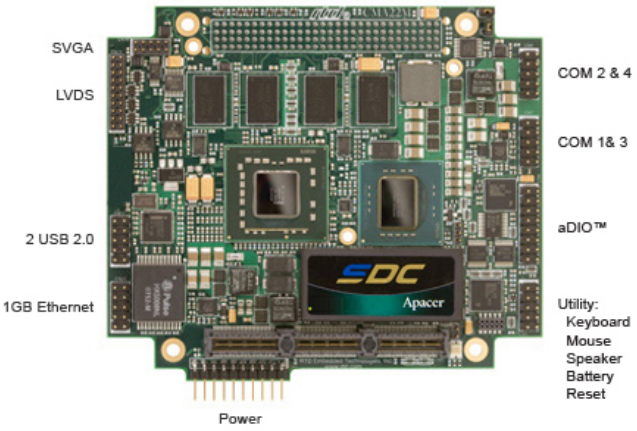
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CMA22MVD1200HR & CMA22MVD1860HR

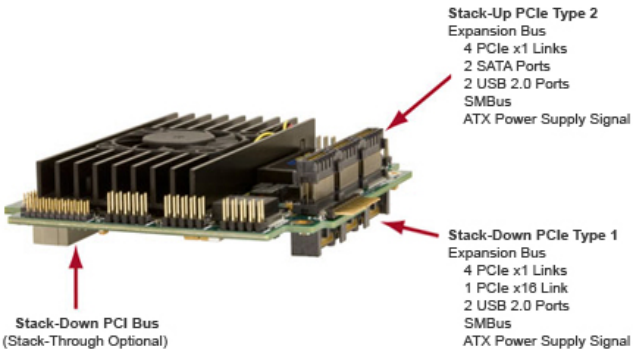
PCI/104-Express Single Board Computers & Controllers
1.20 GHz – 1.86 GHz Intel® Core™ 2 Duo

Key Features

- PC/104 Form Factor
- PCI/104-Express Stackable Bus Structure
  - PCIe Type 2 expansion bus (stacking up)
  - PCIe Type 1 expansion bus (stacking down)
  - PCI expansion bus
    - Standard stack-down configuration
    - Stack-through or stack-up optional
- Complete PC-compatible Single Board Computer
- **Intel Core 2 Duo Processor on 45nm**
  - Clock Speeds: 1.20 – 1.86 GHz
  - Max. Core Temperature: 105°C
- *User-selectable single-core operation*
- 2GB DDR2 Memory (Surface-Mounted)
- Onboard Industrial SATA Flash Drive up to 32GB (4GB Standard)
- Eight x1 PCIe Links
- One x16 PCIe Link (configurable as one x8 or one x4)
- Two SATA Ports
- Four Serial Ports (RS-232/422/485)
- Six USB 2.0 Ports
- Gigabit Ethernet
- Analog VGA & LVDS Panel
- Advanced Digital I/O (aDIO)
- Advanced Analog I/O (aAIO) available upon request
- -40 to +85°C standard operating temperature
- Heat Sink Options
  - Thermal-optimized mini-fan heat sink included (standard)
  - Modified heat sinks and flat heat spreaders are available
  - The optional heat spreader shown on this page is designed for mounting to a cold plate



CMA22MVD Single Board Computer



CMA22MVD Single Board Computer (side-view with active heatsink installed)

Description

The CMA22MVD is a powerful PC/104 single board computer with a PCI/104-Express stackable bus structure. As a part of RTD's advanced PCI Express offering, this Intel Core 2 Duo based CPU is exceptionally suited for applications requiring performance-rich technologies. With stackable PCI and PCI Express bus connectivity, users have many options for add-in peripheral cards. An optional 32GB flash drive makes this CPU Windows 7 ready.

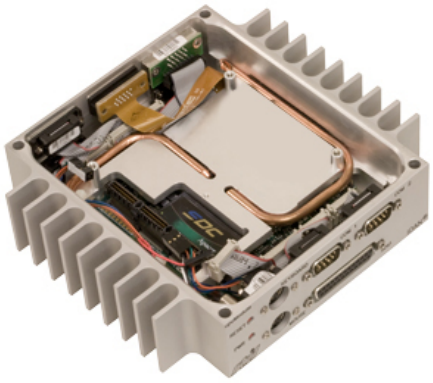


Flat heat spreader option shown above. Product modifications available upon request.

Technical Details

- Stackable Expansion Buses
  - PCIe Type 2 (stacking up)
    - Four PCI Express x1 Links
    - Two SATA Ports
    - Two USB 2.0 Ports
    - SMBus
    - ATX Power Supply Signaling
  - PCIe Type 1 (stacking down)
    - Four PCI Express x1 Links
    - One PCI Express x16 Link
      - Configurable as one x8 or one x4
    - Two USB 2.0 Ports
    - SMBus
    - ATX Power Supply Signaling
  - PCI
    - Supports 3.3V and 5V Signaling
    - 4 Bus Masters Supported
    - ATX Power Supply Signaling
- Processor
  - Intel Core 2 Duo SU9300 (Dual Core 1.20 GHz)
  - Intel Core 2 Duo SL9400 (Dual Core 1.86 GHz)
  - Processor Options Include:

        - Execute Disable (XD/NX) Security
        - 45nm Process
- Memory
    - 2GB DDR2
    - 800MHz SDRAM
    - Dual Channel Interface for Increased Bandwidth
    - Surface Mounted For Maximum Reliability
- Video
    - Intel Graphics Media Accelerator 4500MHD
    - Gen 5.0 graphics engine with 10 cores
    - Dynamic Video Memory (32MB – 256MB)
    - DirectX 10 Support
    - Supports Windows Aero Glass Effects
    - Analog VGA and LVDS Panel Interfaces
- Serial ATA (SATA)
    - Up to 32GB Onboard Industrial SATA Flash Drive (4GB Standard)
    - Three additional SATA ports (two on the top bus connector, one on the bottom)
        - Use with drive carriers or cable kit
    - SATA revision 2.0, up to 3.0Gbit/sec interface speed
    - Supports IDE mode for legacy compatibility or AHCI mode for improved performance
    - Supports Intel Matrix Storage RAID
        - RAID0 – Multiple Drives Striped for Performance
        - RAID1 – 2 Drives Mirrored for Redundancy
        - Intel RAID drivers or OS support required
    - Drive Hot Plug supported in AHCI/RAID with appropriate drive carrier (IDAN-RSATA-SYS104)
- Gigabit Ethernet
    - Intel 82567LM PHY + ICH9M Controller (PRO1000 Series)
    - 10/100/1000 Auto-negotiation
    - Jumbo Frame Support
    - PXE Network Boot
- USB 2.0
    - Two ports onboard
    - Four additional ports available via PCIe/104
    - Over-current protection (500mA @ 5Vdc)
    - USB Boot capability
- Serial Ports
    - Four RS-232/422/485 serial ports on two connectors, each connector configurable as:
        - One full RS-232 port with TxD, RxD, CTS, RTS, DSR, DTR, RI, and CD
        - One RS-422/485 port with TxD+, TxD-, RxD+, RxD-
        - Two RS-232 ports:
            - One with TxD, RxD, CTS, and RTS
            - One with TxD and RxD
        - One RS-232 port with TxD and RxD, and one RS-422/485 port with TxD+, TxD-, RxD+, RxD-
        - Two RS-422/485 ports each with TxD+, TxD-, RxD+, RxD-
    - 120 ohm termination for RS-422/485 Mode
    - Serial Ports Modes are BIOS-configured, no jumper settings required.
    - Standard PC 16C550 UART Interface
- Advanced Digital I/O (aDIO)
    - One 8-bit-programmable I/O with Advanced Digital Interrupt Modes
        - **Event Mode** Interrupt generates an interrupt when any input bit changes
        - **Match Mode** Interrupt generates an interrupt when input bits match a preset value
        - **External Strobe** Mode latches 8 data inputs and generates and interrupt
    - One 4-bit port programmable as input or output
    - Two Strobes can be configured as readable inputs.
- Thermal Management
    - Thermal Throttling reduces clock speed to prevent thermal runaway
    - Auto Fan Control only runs fan when needed
    - Hardware monitor for temperature and voltage
    - Mini Fan Heatsink with Auto Fan control
    - Passive Structural Heatsink & Heatpipes in IDAN and HiDAN System Configurations
- Power Management
    - Enhanced Intel SpeedStep – Dynamically throttle CPU frequency/voltage based on processor load.
    - ACPI 3.0 Support – Advanced Configuration and Power Interface
    - ATX Support for “Soft Off”
- Additional Hardware Features
    - XK-CM77 Cable Kit Included
    - Watchdog Timer
    - PS/2 Keyboard and Mouse
    - Real Time Clock (external battery required)
    - PC Speaker
    - ATX Power Button Input
    - Reset Button Input



Rugged Fanless IDAN configuration

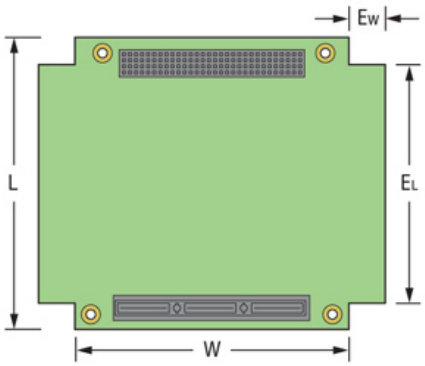
Product modifications available upon request.

Software

- RTD Enhanced BIOS
  - Supports boot from SATA, USB, or Ethernet (PXE)
  - Serial Console Redirection
  - EEPROM-based CMOS Setup – No battery required to store settings
  - Fail Safe Boot – Load DOS even if no boot device is present
  - Special RTD Reliability Enhancements
- Compatible with all x86 PC operating systems:
  - DOS (MS-DOS, ROM-DOS, PC-DOS)
  - Windows (7, XP, Embedded Standard, XP Embedded)
  - Linux (desktop and real-time versions)
  - RTOSes such as QNX, VxWorks, Windows CE, and xPC Target
  - Note: Some hardware interfaces may require special drivers
- Includes pre-installed Datalight ROM-DOS
- Drivers and support provided for DOS, Windows, and Linux

Physical Attributes

- Dimensions
  - Board Size
    - Length (L): 3.775 inches (95.89 mm)
    - Width (W): 3.550 inches (90.17 mm)
  - I/O Extension
    - Length (EL): 3.125 inches (79.380 mm)
    - Width (EW): 0.500 inches (12.700 mm)
  - Stand-off Height
    - Above the CPU: 0.866 inches (22.00 mm)
    - Below the CPU: 0.600 inches (15.24 mm)
- Weight: Approximately 0.44 lbs. (0.20 Kg) with heatsink
- Standard Operating Temperature, 90% humidity non-condensing
  - 1.20 GHz: -40 to +85°C
  - 1.86 GHz: -40 to +70°C
- Storage Temperature: -25 to +85°C
- MTBF:
  - CMA22MVD1200: 446,972 hours
  - CMA22MVD1860: 442,620 hours
- Power Consumption
  - CMA22MVD1200 - 1.20 GHz: 13 W @ 5 V Typical (single-core mode)
  - CMA22MVD1200 - 1.20 GHz: 16 W @ 5 V Typical (dual-core mode)
  - CMA22MVD1860 - 1.86 GHz: 18 W @ 5 V Typical (single-core mode)
  - CMA22MVD1860 - 1.86 GHz: 21 W @ 5 V Typical (dual-core mode)



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