

# V7865

## Intel® Core™ 2 Duo Processor VME Single Board Computer

### Features

- Intel Core Duo and Core 2 Duo processors up to 2.16 GHz
- Up to 3 GB DDR2 SDRAM
- RoHS Compliant
- Up to 4 GB bootable CompactFlash
- 667 MHz system and memory bus
- ANSI/VITA 1.5-2003 (2ESST, up to 320 MB/s)
- Optional VITA 41.3 (1000 Mb/s IEEE 802.3)
- Two RS232/422 serial ports
- Single PCI-X PMC site
- Four USB 2.0 ports
- Available for two environments:
  - Commercial
  - Rugged extended temperature\*
- Multiple operating systems supported

\* 1.66 GHz CPU only

The V7865 is GE Fanuc Embedded Systems' flagship Core 2 Duo VMEbus single board computer, offering processor and I/O flexibility to meet many different application needs. The V7865 is available in commercial up to rugged extended temperature models, making it ideal for applications including advanced defense, aerospace, and homeland security.

Based on the Intel Core Duo/Core 2 Duo processors, this board offers processor speeds at 1.66 GHz, 2.0 GHz, or 2.16 GHz and features up to 4 MB of L2 cache with Advanced Transfer Cache Architecture, while delivering optimized power efficient computing with low power consumption. Memory options include up to 3 GB DDR2 SDRAM (1 GB on-board), and up to 2 GB CompactFlash.

The V7865 meets the ANSI/VITA 1.5-2003 standard, based on the Tundra Tsi148. The VMEbus can run at a bandwidth of up to 320 MB/s along the full length of a 21-slot backplane. Performance is increased in the following ways:

- 8x faster than the 40 MB/s transfer rate of VME64
- 3x faster than a multi-domain, 64-bit/66 MHz CompactPCI® bus
- Broadcast Mode support for sending data to multiple cards at one time

The V7865 features multiple I/O options, including two Gigabit Ethernet ports, two RS232/422 ports, four USB 2.0 ports, and one serial ATA interface.

### Specifications

#### Processor

- Intel Core/Core 2 Duo processor with core processor speeds up to 2.16 GHz
- High performance with low power consumption (1.66 GHz)
- 4 MB of advanced L2 cache (2.16 GHz CPU)
- 667 MHz system bus

#### SDRAM

- Maximum memory configuration of 3 GB of DDR2 SDRAM
- 1 GB of on-board memory
- 2 GB of SODIMM (one 200-pin SODIMM DDR2 module)
- The rugged extended temperature option is only available with either 512 MB or 1 GB on-board memory

#### Compact Flash

- CompactFlash up to 4 GB
- CompactFlash may be configured as the boot device through the BIOS boot device set-up

#### BIOS

- The V7865 System BIOS and Video BIOS are provided in reprogrammable memory.

#### Gigabit Ethernet

- VITA 41.3 (dual 1000 Mb/s)
- Dual Gigabit Ethernet routed to front panel RJ45 connectors
- Ethernet controller is Intel 82571

#### USB Ports

- Four USB 2.0 ports: two to rear I/O via P2, and two to front panel
- Supported USB features include: isochronous data transfers, asynchronous messaging, self-identification and configuration of peripherals, and dynamic (hot) attachment

#### VMEbus Backplane Interface

- The Tundra Tsi148 enables ANSI/VITA 1.5-2003 (2ESST) protocol providing 320 MB/s along the full length of a 21-slot backplane. Performance is increased in the following ways:
  - 8x faster than the 40 MB/s transfer rate of VME64
  - 3x faster than a multi-domain, 64-bit/66 MHz CompactPCI bus
  - Broadcast Mode support for sending data to multiple cards at one time
- Optional VITA 41.3



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## Serial Ports

- Two 16550 compatible serial ports via DB-9 connectors: one to rear via P2, and one to front panel
- Ports feature independent 16-byte FIFO supporting baud rates up to 115 Kbaud

## Serial ATA

- Two serial ATA interfaces via the VMEbus backplane connector P2
- 3 Gb/s (300 Mb/s)

## PMC Extension Slot

- One 133 MHz PCI-X PMC site
- 46-pin P2 user I/O per Vita 35, P4V2-46dz
- Add 3 x 32-bit/33 MHz PMC sites with the PMC237CM1/V

## Programmable Timers

- Two 16-bit timers and two 32-bit timers
- Mapped in PCI memory space
- Completely software programmable and can generate PCI bus interrupts

## Watchdog Timer

- Programmable intervals
- Interrupt and board reset triggers

## Nonvolatile SRAM

- 32 KB of nonvolatile SRAM

## Input/Output Chart

| I/O              | V7865 Front Panel | ACC0603-TM |
|------------------|-------------------|------------|
| Serial ports     | 1                 | 1          |
| USB 2.0          | 2                 | 2          |
| Gigabit ethernet | 2                 |            |
| SVGA             | 1                 |            |
| DVI-I            |                   | 1          |
| Mouse/keyboard   | 1                 |            |

## Dimensions

- 6U (4HP) single slot Eurocard form factor
- Height: 9.2 in. (233.4mm)
- Depth: 6.3 in. (160mm)
- Thickness: 0.8 in. (20.3mm)

## Power Requirements

- +5 VDC (±5 percent), 6 A (typical), 8.2 A maximum
- +12 VDC (±5 percent), 0 mA
- -12 VDC (±5 percent), 0 mA

## Airflow

- Forced air cooling required
- 400 LFM minimum, measured at the top (outlet) of the unit

## Temperature

- Commercial: 0° to 55° C
- Rugged extended temperature: -40° to 70° C (Vita 47 Class EAC6)\*

\* 1.66 GHz CPU only

## Humidity

- Operating: relative humidity 5% to 95%, noncondensing
- Storage: relative humidity 5% to 95%, noncondensing

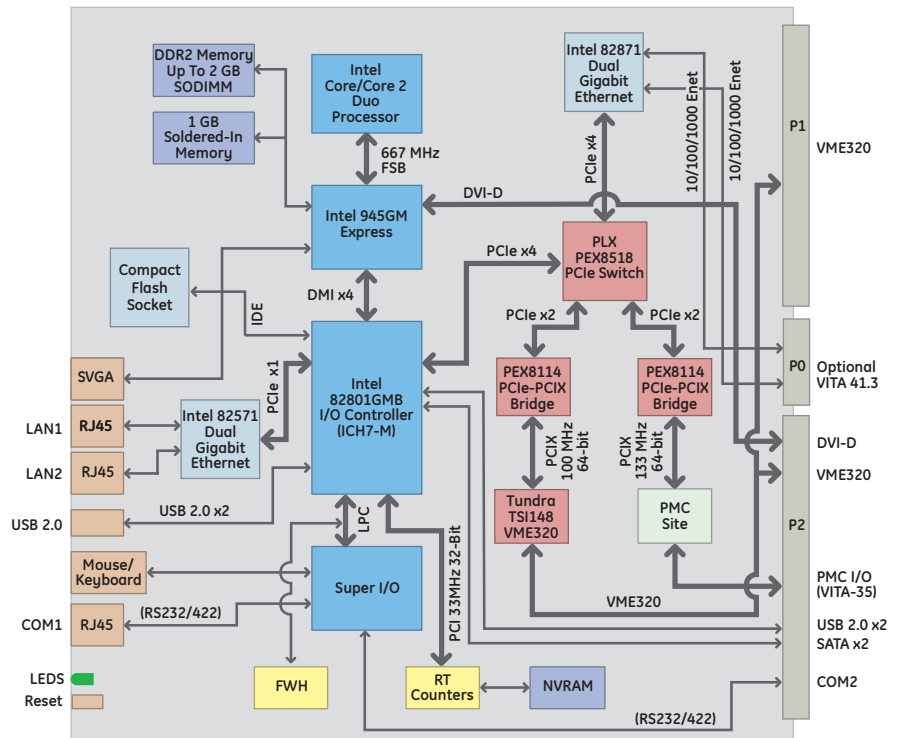
## Shock

- 12 g shock (commercial)
- 20 g shock (rugged extended temperature)

## Vibration (Rugged Extended Temperature)

- 5 Hz to 100 Hz PSD increasing at 3 dB/octave
- 100 Hz to 1000 Hz PSD = 0.04 g<sup>2</sup>/Hz
- 1000 Hz to 2000 Hz PSD decreasing at 6 dB/octave

## Block Diagram



## Ordering Options

**V7865-210003:** 2 GHz processor, 1 GB DDR2 SDRAM, commercial temp.

## Hardware Accessories

ACC-0602: 3U rear transition board  
 ACC-0603: 6U rear transition board  
 PMC237CM1/V: Adds 3 x 32-bit/33 MHz PMC sites

## Operating Systems

GE Fanuc Embedded Systems supports various operating systems. Please contact us for current offerings. For detailed information and further options, contact GE Fanuc Embedded Systems.

## About GE Fanuc Embedded Systems

GE Fanuc Embedded Systems is a leading global provider of embedded computing solutions for a wide range of industries and applications. Our comprehensive product offering includes many types of I/O, single board computers, high performance signal processors, fully integrated, rugged systems including flat panel displays, plus high speed networking and communications products. The company is headquartered in the U.S. and has design, manufacturing and support offices throughout the world. Whether you're looking for one of our standard products or a fully custom solution, GE Fanuc Embedded Systems has the breadth, experience and 24/7 support to deliver what you need. For more information, visit [www.gefanucembedded.com](http://www.gefanucembedded.com).

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## Additional Resources

For more information, please visit the GE Fanuc Embedded Systems web site at:

[www.gefanucembedded.com](http://www.gefanucembedded.com)

