



RPD

The RPD is a VMEbus (and VME64) compatible platform based on either the Intel® low-power Core-Duo (Yonah) processor or the Intel® Core™2 Duo Mobile Processor L7400. The RPD takes advantage of the Core-Duo's low 15 W power (Core 2 Duo at 17W) consumption as a rugged Single Board Computer (SBC). It is optionally available as an IEEE 1101.2-compliant, conduction-cooled VMEbus module with wedge locks and a full-board heat sink for high shock/vibration environments and temperature extremes.

The E7520 Memory Controller Hub (MCH) and 6300ESB I/O Controller Hub (ICH) chipset supports PCI-X and PCIe expansion, USB 2.0, ATA/100, and Serial ATA (SATA). Two Gb Ethernet ports and two USB 2.0 ports are accessible from the front panel in addition to two PMC bezels. On-board CompactFlash permits single-slot booting. Two VITA 31.1-compliant, 10/100/1000BaseTX ports are routed to the backplane. Two SATA ports, VGA video, two Gb Ethernet ports, four RS232 ports, one RS422 port, an IDE interface, PS/2 mouse & keyboard, and two more USB 2.0 ports are routed to the backplane. Two PMC-X site is provided for additional I/O expansion. Conventional PC I/O is accessible with industry-standard connectors on optional rear I/O modules.

Core™2 Duo Mobile Processor L7400

1.5 GHz, 479-pin uFC-BGA Core 2 Duo manufactured
with low-power 65 nm process
4 MB L2 Cache
667 MHz front side bus
64-bit OS and application support

Core Duo Processor

1.66 GHz, 479-pin uFC-BGA Core-Duo manufactured
with low-power 65 nm process
2 MB L2 Cache
667 MHz front side bus

Single-slot Operation

Single-slot CompactPCI operation with an on-board
CompactFlash disk for bootable mass storage

E7520 & 6300ESB Chipset

Two x4 PCI Express interfaces are routed to two dual Gb
Ethernet controllers
One x8 PCI Express interfaces is routed to an XMC site
DDRR2-400 DRAM interface with a max memory
bandwidth of 6.4 GB/second
Four USB 2.0 Ports
PATA/100 and SATA/150 support
PCI-X 64/66 for the two PMC sites
PCI 32/33 for the Universe IID VMEbus bridge and the
ATI VGA controller

DRAM

2 or 4 GBytes of DDR2-400 memory
BGA memory for high shock/vibration immunity
Two banks that are each 64 bits wide with 8 bits for ECC support

VMEbus

Tundra Universe IID PCI-VMEbus interface provides 64-bit VMEbus transfer rates over 30 MB/sec
Full range of software drivers is available for different operating systems
Full Slot 1 (system controller) functions provided
Lower cost versions available without VMEbus

PMC Expansion

Two PMC sites based upon PCI-X bus with 64-bit 66 MHz
One of PMC sites also supports XMC modules with x8 PCIe
Access to both PMC sites from rear

Ethernet

Four 10/100/1000 BaseTX
2 Gb Ethernet ports are available from front panel (only available on convection cooled versions)
2 Gb Ethernet ports are routed to P0

Graphics

ATI Rage mobility graphics controller
The M1 offers 8 MB DRAM on chip
SVGA interface routed to P0

IDE

Primary ATA/100 DMA IDE interface is accessible from the VMEbus
P2 connector PIO and bus master support
Secondary IDE port is routed to a Type II-compatible CompactFlash connector for on-board booting

Core™2 Duo Mobile Processor L7400

Delivering breakthrough energy efficient performance for embedded platforms. 65 nm process technology makes it possible to integrate two complete execution cores in one physical package, providing advancements in simultaneous computing for multi-threaded applications and multitasking environments. While incorporating advanced processor technology this processor remains software compatible with previous IA-32 processors. Executes four instructions per cycle to improve execution speed and efficiency using 14-stage pipeline. Supports 64-bit instructions, providing flexibility for 64-bit and 32-bit applications and operating systems.

Core-Duo Processor

With its two execution cores, the Intel Core Duo processor is optimized for multi-threaded applications and multitasking. You can simultaneously run multiple demanding applications such as graphics-intensive programs or serious number-crunching routines - while downloading files or running virus-scanning security programs in the background. The DPD uses a 1.66 GHz BGA processor that runs at only 15 Watts. This low power performance ideally suits it to embedded, industrial applications where high bandwidth processing is required.

BIOS

General Software's flash-based system BIOS with a variety of boot options, including CD-ROM and PXE over Ethernet
Customized versions available upon request

Watchdog

Programmable watchdog timer for system recovery

Rear I/O

P0 I/O includes SVGA, two SATA, two 10/100/100BaseTX, and PMC I/O for one site
P2 I/O includes two driven full RS-232, two driven 2-wire RS-232, two USB 2.0, primary IDE interface, PMC I/O for one site

XPDPTB Interfaces

Rear I/O interface board (RTM) provides industry standard connectors for all rear I/O

Operating temperature

The DPD/RPD has an operating temperature range of 0°/70° C
Extended temperature versions are available

Rugged/Conduction-cooled

RPD is a conduction-cooled version of the DPD
Wedgelocks provide high shock/vibration immunity per MIL-STD-810F
Convection-cooled and conduction-cooled versions have conformal coating as an option

Power Consumption

Approximately 30 W typical

RPD I/O Routing		
I/O	P0	P2
SVGA	1	
Serial ATA	2	
10/100/1000BaseTX	2	
Full Driven RS-232 Port		2
Two-wire Driven RS-232		2
USB 2.0		2
PMC/XMC site #1 I/O		1
PMC site #2 I/O	1	
Primary IDE Interface		1

Environmental Specification

Temperature			
	Operating	0°/71°C Special versions available for extended temperature operation	Clock throttling can be implemented for wider temperature ranges
	Storage	-55°C to 125°C	
Humidity			
	Operating	0 to 95% non-condensing	± 4% relative humidity, per MIL-STD-810F
	Storage	0 to 100% non-condensing	
Altitude			
		Unlimited	Air cooled cards must have adequate cooling
Vibration			
	Sine	10 g peak 15-2 kHz	All levels based on a sweep duration of ten minutes per axis, each of three mutually perpendicular axes. Qualification testing is displacement limited below 44 Hz.
	Random	0.1 g ² /Hz 15-2 kHz (14.1 grms)	60 minutes per axis each of three mutually perpendicular axes.
	Shock	40 g peak	Three hits per direction per axis, ½ sine + terminal peak sawtooth, 11 ms (total 36 hits).

