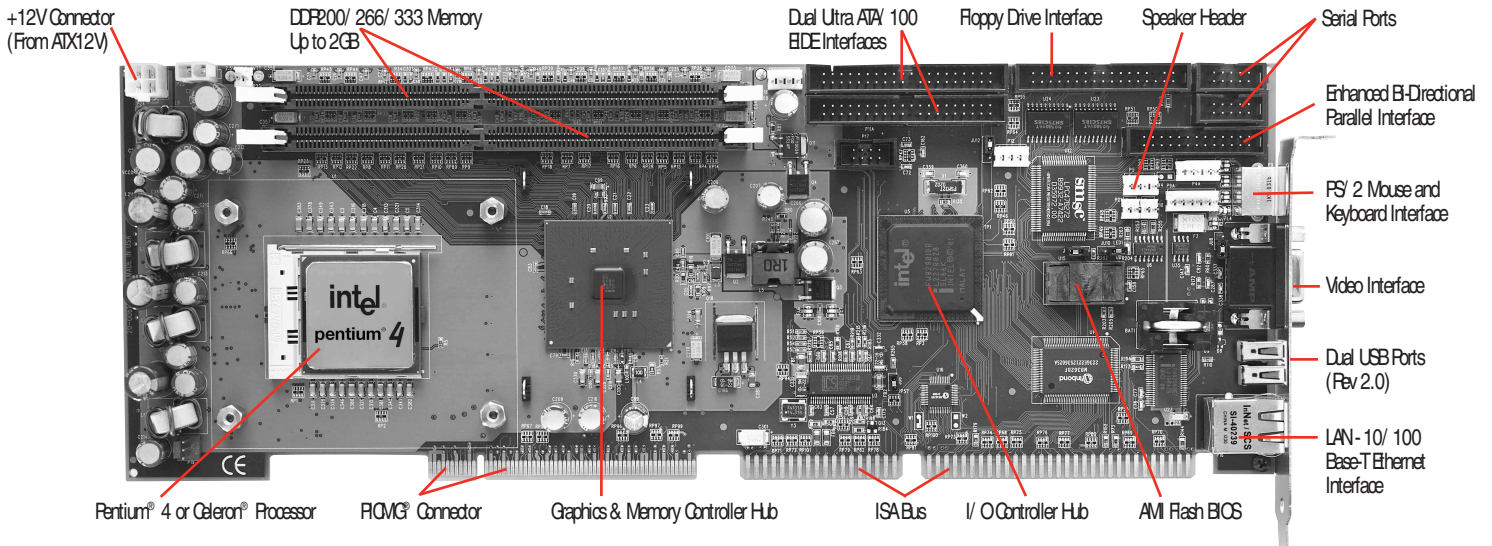


### T4G SINGLE BOARD COMPUTER



The T4G provides a base level of functionality and value required in less demanding single board computer applications. Economical innovations like the Intel® 845GV chipset, with integrated graphics and video, combine with Pentium® 4 and Celeron® processor options to maximize system value in low-end applications. Trenton's renowned SBC quality, longevity and dependability are standard features on the T4G.

#### PROCESSOR:

Intel® Pentium® 4 processor at 2.0GHz to 3.06GHz\*  
 Intel® Celeron® processor at 2.0GHz\*  
 Processor Package: mPGA478

\*Higher speeds as available

The Pentium 4 processor supports a 400/ 533MHz system bus as well as Intel's NetBurst™ microarchitecture. These features combine to provide optimum system performance and fast program execution in a PCI/ ISA single board computer. Some of the processor features that enable such performance enhancements are:

- Hyper-Pipelined technology
- Streaming SIMD Extensions 2 (SSE2)
- Advanced Dynamic Execution

Intel's Hyper-Threading technology makes the Pentium 4, 3.06GHz processor appear as two logical processors. The operating system and application must be optimized for Hyper-Threading. This feature delivers faster program execution by enabling simultaneous instruction processing using the two logical processors.

#### CHIPSET:

The 845GV chipset features integrated video and graphics and supports a 400/ 533MHz system bus, a maximum of two double-sided unbuffered 184-pin non-ECC DDR SDRAM DIMMs, and a 266MB/ s Hub Interface to the ICH4 I/ O Controller.

#### CACHE MEMORY (L2 AND L1):

The Pentium 4 processor supports a level two (L2) cache memory of 512K, while the L2 cache supported on the Celeron processor is 128K. Both cache memories are integrated on-die Advanced Transfer Cache memories that are 8-way set associative and run at full processor core frequency.

Both processors include a 12K level one (L1) Execution Trace Cache and an 8K L1 data cache.

#### VIDEO INTERFACE:

The analog video interface of the 845GV has a wide range of video and graphic capabilities and supports pixel resolutions up to 2048 x 1536 (QXGA) at a refresh rate of 60Hz. The Graphics and Memory Controller Hub (GMCH) of the 845GV has an integrated graphics accelerator that supports high performance 3D/ 2D graphics and video. The amount of system memory used for video is determined by the SECs BIOS and by the 845GV's Dynamic Video Memory Technology (DMT) feature. In the BIOS the user can allocate up to 8MB of system memory to support video; DMT can dynamically allocate up to 64MB. DMT memory allocations take the form of allocation requests from the graphics driver to the operating system based on the needs of the application software. DMT returns the memory to the OS when the application no longer needs the additional video memory support. Software drivers are available for most popular operating systems.

#### DDR200/ 266/ 333 MEMORY:

The DDR200/ 266/ 333 interface is a single-channel interface connecting the GMCH to two DIMM module sockets. The DIMM sockets can be independently populated with either PC1600, PC2100 or PC2700 unbuffered 184-pin non-ECC DDR SDRAM DIMMs. The memory interface supports auto detection of memory up to 2GB. Depending on the processor's system bus speed and the type of memory module used, the memory interface bandwidth is either 1600MB/ s, 2100MB/ s or 2700MB/ s.

#### IDE ULTRA ATA/ 100 INTERFACES (DUAL):

Dual high-performance PCI IDE interfaces are capable of supporting up to two IDE disk drives each in a master/ slave configuration. Supports Ultra ATA/ 100 with synchronous ATA mode transfers up to 100MB per second.

#### BUS SPEEDS:

ISA	- 16-bit/ 8MHz
PCI	- 32-bit/ 33MHz
Hub Interface	- 266MB/ s
System or FSB	- 400MHz/ 533MHz

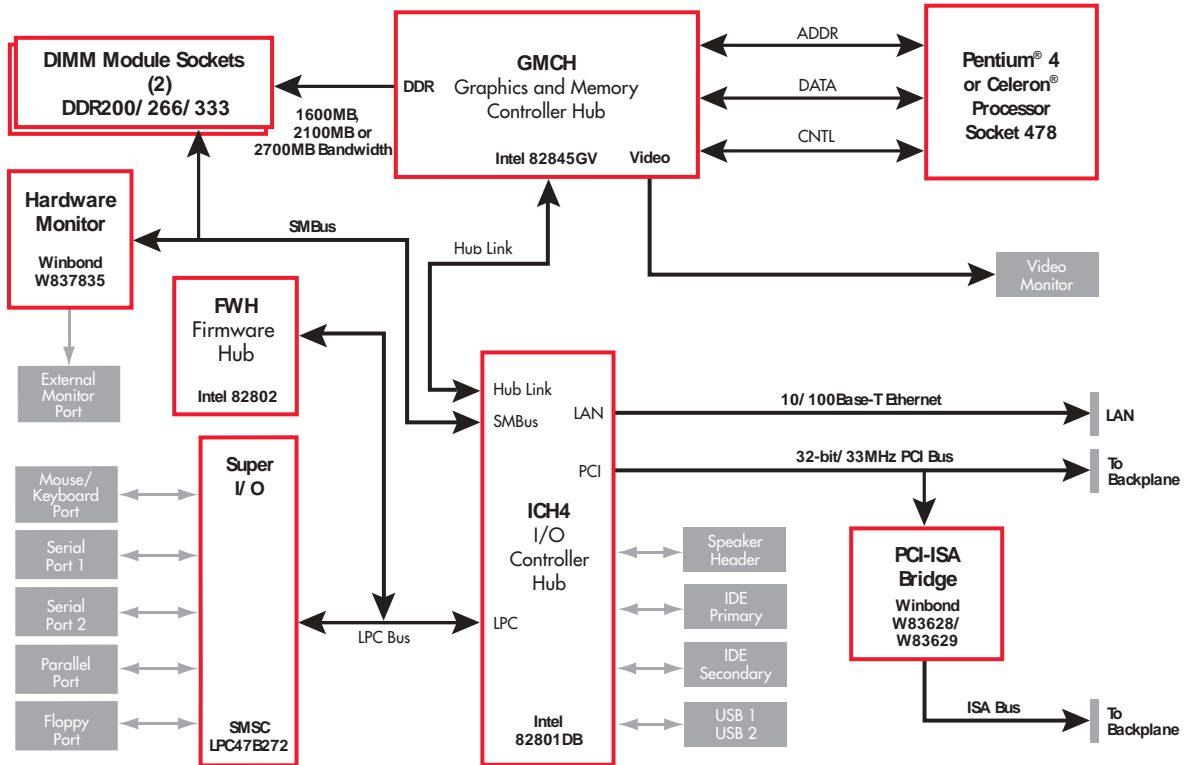
#### BIOS (FLASH):

The T4G uses AMI BIOS®. The flash BIOS resides in the 82802 Firmware Hub (FWH). AMI BIOS contains useful features such as:

- CMOS setup for system parameters
- Peripheral management for configuring on-board peripherals
- PCI-to-PCI bridge support and PCI interrupt steering
- Support for flash devices for BIOS upgrading via floppy interface
- Integrated support for USB mass storage devices such as USB CDROM, CD-RW, etc.
- Faster POST execution
- Boot from network, USB mass storage devices, IDE or ATAPI
- Serial port console redirection to support headless operation
- ATAPI support includes 48-bit LBA addressing to support ATAPI IDE hard drive capacities over 137GB



Dependable, always.



### 10/ 100BASE-T ETHERNET INTERFACE:

The T4G I/O Controller Hub (Intel 82801DB) provides a 10/ 100 Base-T Ethernet interface. An RJ45 connector, located on the I/O bracket, provides the physical interface to the Ethernet network.

### ADDITIONAL T4I FEATURES:

#### System Hardware Monitor:

- The Winbond W83783S chip supports hardware monitoring. The functions monitored are:
  - Voltage: +3.3V, +/- 12V, +5V and VCCFE
  - Fan speed
  - Temperature
- The T4G hardware monitor driver allows the user to program the monitor limits to provide a trigger point for the application software. The user's application program can monitor these trigger points in order to send system alert messages or perform corrective actions.

#### Watchdog Timer:

- The programmable watchdog timer provides a system reset with a total range of 30ms to 60 seconds. The programmable increments of the watchdog are 30ms, 10s and 60s.

#### I/O Features:

- Two high-speed serial ports
- Enhanced bi-directional parallel interface
- Dual Universal Serial Bus (USB, Rev 2.0)
- PS/2 mouse/ keyboard interface
- Floppy drive interface

### STANDARDS:

- IEEE P996, Personal Computer Bus Standard
- PCI Local Bus Specification 2.1
- ROMC 1.0 Specification

### T4G APPLICATION CONSIDERATIONS:

#### Power Requirements:

##### Typical Values

Pentium 4:	CPU	+5V*	+12V**	+3.3V*
	3.06GHz	3.01A	6.15A	2.01A
	2.8GHz	3.01A	4.65A	2.01A
	2.6GHz	2.95A	4.38A	2.00A
	2.4GHz	2.95A	3.90A	2.00A
	2.0GHz	2.95A	3.28A	2.00A
Celeron:	CPU	+5V*	+12V**	+3.3V*
	2.0GHz	2.85A	3.45A	2.00A

-12V @ <100mA\*

\* From backplane via ROMC connector

\*\* From ATX12V power supply or equivalent via P24 connector

The Pentium 4 processor's power requirements created the need for an additional on-board 4-pin power connector (P24). This connector requires +12V from an external power supply that conforms to the ATX12V power specification. This external power supply should have a minimum wattage rating of at least 250W. The T4G also requires that 3.3V be applied to the backplane from the power supply.

#### Temperature/Environment:

Operating Temperature:	0° to 45° C
Storage Temperature:	-40° to 70° C
Humidity:	5% to 90% non-condensing

The high-performance Pentium 4 processor used on the T4G can consume as much as 70 Watts of power. The T4G's cooling system uses a high-reliability fan mounted to the SEC.

#### Mechanical:

SECs with processor options less than 2.8GHz use a low-profile (1.65" height) active cooling system. Overall dimensions for the T4G with these processor options, including the active cooling system are 13.3"L (338mm) x 4.8"H (121.9mm) x 1.65"W (49.1mm). SECs with processor speeds 3.06GHz or greater use a taller active cooling system and have overall dimensions of 13.3"L (338mm) x 4.8"H (121.9mm) x 2.18"W (55.37mm).

### AGENCY APPROVALS:

- Designed for UL1950, CAN CSA C22.22 No. 950-95, EN55024: 1998; EN55022: 1998 Class B; EN61000-3-2: 2000; EN61000-3-3: 1995

### ORDERING INFORMATION:

Model #	Model Name: T4G	CPU Speed
Pentium® 4/ 533MHz		
6130-108-xM		3.06GHz
6130-107-xM		2.8GHz
6130-104-xM		2.4GHz
Pentium® 4/ 400MHz		
6130-006-xM		2.6GHz
6130-002-xM		2.0GHz
Celeron®		
6130-502-xM		2.0GHz

(xM = Memory)

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