

Thunderbird-GM45

Mini-ITX Single Board Computer
Intel® Core™ 2 Duo Processor

Features

Intel Core 2 Duo with GM45 chipset

Max. 4 GB DDR2 RAM

Integrated graphics controller

DVI, 1600 x 1200 pixels

LVDS, 24/18 bits, 1600 x 1200 pixels

Gigabit LAN

11x USB 2.0

4 x SATA

Adaptive-I/O™ Interface

LEMT management functions

Low power consumption

Opt. ext. temperature range -40°C...+85°C



 Adaptive-I/O™

The next generation Thunderbird-GM45 is built around the latest generation of Intel CPU's and chipsets, the Intel Core 2 Duo. This Mini-ITX board is equipped with the familiar standard interfaces. It utilizes the Intel GM45 chipset, which comes with an integrated graphics controller and uses DVI-I and LVDS for the display connection. The Mini-ITX board features four SATA adapters, a Gigabit LAN interface, and 11 USB 2.0 host ports. The chipset supports up to 4 GB DDR2 RAM.

In addition to the standard interfaces listed above, the Thunderbird-GM45 comes with an Adaptive-I/O™ connector, which allow to combine the basic Mini-ITX board with application specific I/O interfaces. Using an Adaptive-I/O board instead of a garden-variety PCI card allows to build mechanically stable systems. Because of the sturdy connector and the possibility to fix the I/O card with screws to the Mini-ITX board, very robust assemblies can be built.

The Thunderbird-GM45 features the LiPPERT Enhanced Management Technology, (LEMT) based on an integrated system management controller (SMC). It handles the power sequencing, several other management tasks, and provides a protected flash area for miscellaneous user information.

LiPPERT is an independent design house and manufacturer that develops and builds special customer solutions. Please ask for a specific quotation.



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THE EMBEDDED PC COMPANY

Thunderbird-GM45

Mini-ITX Single Board Computer
Intel® Core™ 2 Duo Processor

Technical Data

Board Format Mini-ITX, 170 mm x 170 mm

Processor Intel Core 2 Duo T9400
Intel Core 2 Duo L7500

CPU Speed 2.53 MHz

Core Logic Mobile Intel GM45

FSB Clock 1066 MHz

RAM (max.) 4 GB DDR2 DIMM
(667 / 800MHz)

Graphics GMA X4500
up to 384 MB video memory

DVI 1600 x 1200 pixels

LVDS Dual/single channel, 18 and 24 bits
1600 x 1200 pixel at 60 Hz max.

USB 11 x USB 2.0 host ports
- 4 external standard USB
connectors
- 7 internal ports

LAN 1000/100/10 MBit Ethernet
with Intel® 82567

SATA 4 host adapters

Watchdog Yes (LEMT)

uDiskOnChip 2x pin header with USB available

Status LED HDD, power, standby, power mode,
live, 2x Ethernet, watchdog,
mini PCI express

PCI Express 1 Mini-PCI Express slot
(MiniCard)

PCI Bus Standard PCI slot

RTC Backup Integrated Lithium battery

Power Supply 12V ±5 % from ATX connector
All necessary voltages are generated
on-board.

Power Consumption 15W typical
< 40W maximum

Cooling Either an active cooler or a suitable
passive cooling solution is required.

Operating temperature -20 °C ... +60 °C (industrial)
-40 °C ... +85 °C (extended, optional)

MTBF 143.737 hours at 25 °C

BIOS Phoenix FirstBIOS
BIOS settings are saved in Flash

System Support Functions LiPPERT Enhanced Management
Technology LEMT

Remote Management Intel AMT
(Advanced Management Technology)

Supported OS Windows XP, XP Embedded,
Windows CE, Linux, QNX

 **Adaptive-IO™**

Board Format 165 x 68 mm

Connector Samtec QTH-060-01-F-D-A

Interfaces

- 4 x PCI Express x1 lanes or
1 PCIe x4 lane
- 4 x USB 2.0
- SDVO
- HD audio
- Low Pin Count bus (LPC)
- System Management Bus (SMB)
- Control signals



Ordering Information

Ordering Number	Description
805-0008-10	Mini-ITX CPU board with Intel 2 Core Duo T9400 (2.53GHz) Includes support CD.
805-0013-10	Mini-ITX CPU board with Intel 2 Core Duo L7500 (1.6 GHz). Processor soldered down, passively cooled. Includes support CD.

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