



# Cool XpressRunner-GS45

## PCI/104-Express Single Board Computer Core 2 Duo Processor

The Cool XpressRunner-GS45 is the fastest PCI/104-Express processor module available. It brings the power of the Intel Core 2 Duo processor and the mobile GS45 chipset on a small 3.55" by 4.55" PCI/104-Express board. Advanced semiconductor technology using tiny 45 nanometer structures made it possible to construct processors with minimum power consumption. The CPU speed of 2.26 GHz for the CPU and 1066 MHz for the front side bus deliver unprecedented performance. The board can be equipped with up to two Gigabyte soldered DDR3-1066 RAM.

The chipset features an integrated GMA4500 graphics processor. Displays are connected using either VGA or dual channel LVDS interfaces. High definition audio with analog as well as digital inputs and outputs is available, too.

There is a Gigabit LAN port, 8 USB 2.0 host port and two serial interfaces capable of RS232 and RS485. Two SATA ports round the board's hardware features off.

The Cool XpressRunner-GS45 uses the LiPPERT Enhanced Management Technology, (LEMT) based on an integrated system management controller. It handles the boards housekeeping tasks like power sequencing and watchdog, and provides useful utility functions for the application. Among them is a secure, write and clear protected Flash area that can be used for security keys.

All models of the Cool XpressRunner-GS45 are designed for an ambient temperature range of -20°C...+60°C. The 1GHz model is optionally available for operation in the full extended temperature range of -40°C...+85°C.

The Cool XpressRunner is intended for applications requiring high performance mobile computing. The optionally available extended temperature range makes it the ideal candidate for outdoor usage.



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## Cool XpressRunner-GS45: Features

- Intel® Core™ 2 Duo
  - Up to 2 Gbyte DDR3
  - SXGA: 2048 x 1536 pixels
  - Dual channel LVDS for displays
  - Gigabit LAN
  - 8 x USB 2.0
  - 2 x RS232, RS485
  - 5+1 High Definition Audio
  - Power consumption: t.b.d.
  - Passive cooling possible
  - Extended temperature range @ 1.2 GHz
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- Backup battery
  - Flash BIOS
  - LEMT

## Cool XpressRunner-GS45: Technical Data

Board Format	PCI/104-Express 115.6 mm x 95.9 mm
Processor	Intel® Core 2 Duo
Speed	2.26 GHz max.
FSB	1066 MHz
Core logic	Intel Mobile GS45
RAM (max.)	2 GB DDR3
RAM clock	533 MHz
Graphics	up to 64 MB RAM, up to 2048 x 1536 pixel at 75 Hz
CRT	Analog VGA
LVDS	Dual channel
Serial	COM1, COM2: software selectable for RS232/RS485/RS422
USB	8 x USB 2.0
Ethernet	1000/100/10 BaseT with i82562

IDE	EIDE port according to ATA100
Sound I/O	5+1 High definition Audio (Line-in, Line-out, Mic-in, CD-in) S/PDIF 2.3 compliant
PCI-Express Bus	1 x16 lane 2 x4 lanes
PCI-Bus	5 V compliant
RTC Backup	Soldered battery
Watchdog	yes
Power Consumption (max.)	
Power Managment	BIOS supports ACPI power saving modes
Operating temperature	-20°C ... +60°C (standard, all versions) -40°C ... +85°C (extended, only 1GHz version)
MTBF	t.b.d.
Cooling	The Cool XpressRunner-GS45 must always be operated with sufficient cooling measures. Warranty will// be void if operated without cooling.
Status LED	Power, Watchdog, Ethernet, IDE and life signalization
Power Supply	+5 V only. All necessary voltages are generated on-board.
BIOS	Phoenix FirstBIOS BIOS parameters are also saved in FEPROM
Supported OS	Windows, Linux