Product Brief

Development Kit

Embedded Computing

Intel® Core™2 Duo Processor and Mobile Intel® 4 Series Express Chipset Family Development Kit

Product Overview

The Intel® Core™2 Duo processor and Mobile Intel® 4 Series Express chipset family development kit provides outstanding flexibility for developers of embedded applications by offering excellent graphics, memory and I/O bandwidth, as well as remote asset management capabilities, storage speed and reliability. The platform addresses requirements of a broad range of embedded applications such as interactive clients, gaming platforms and industrial automation equipment.

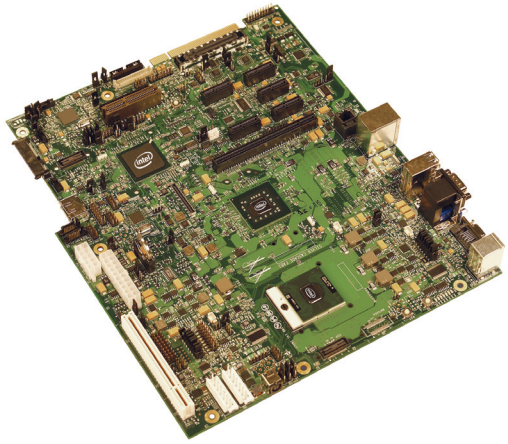
The Mobile Intel® 4 Series Express chipset family offers an integrated graphics engine, DDR3 or DDR2 system memory controller, and support for Intel® Active Management Technology[1] (Intel® AMT), Intel® Trusted Execution Technology (Intel® TXT), and Intel® Matrix Storage Technology.[2]

Intel® Core™2 Duo processor technology integrates two complete execution cores in one physical package, providing advancements in simultaneous computing for multi-threaded applications and multi-tasking environments. Intel's hafnium-based 45nm Hi-k silicon process technology enables even more processor performance by doubling transistor density and increasing cache size by up to 50 percent.

This platform is part of Intel's comprehensive validation process, which enables rapid deployment of next-generation platforms to help developers maximize competitive advantage and minimize development risks. This and other development kits from Intel provide a working system with a range of performance options that can be modified or used immediately for product development, and allow software vendors to test BIOS and operating system software.

Product Highlights

- Development kits are offered with the Intel Core 2 Duo processors T9400,[Δ] SL9400[Δ] and SU9400[Δ3] (see Order Information)
- Chipset options include:
  - Intel® GM45 Graphics Memory Controller Hub (GMCH) in a 34 mm x 34 mm µFC-BGA package and Intel® I/O Controller Hub (ICH) 9M-Enhanced in a 31 mm x 31 mm µ-BGA package
  - Intel® GS45 GMCH in a 25 mm x 27 mm µFC-BGA package and Intel® ICH9M-Enhanced in a 16 mm x 16 mm µ-BGA package



- 667, 800 or 1066 MHz FSB
- Intel® Graphics Media Accelerator; PCI Express* graphics support
- Dual-channel memory controller supports either:
  - DDR2 667/800 MHz, non-ECC, SO-DIMM
  - DDR3 800/1066 MHz, non-ECC, SO-DIMM

Board Peripheral Features

- One (1) single-channel Serial Digital Video Output (SDVO) port on x16 connector
- x16 PCI Express graphics or dual-channel SDVO graphics interface supports high throughput for high-end graphics
- Dual-channel 24-bit LVDS interface; BLI and LED backlight support
- One (1) VGA connector
- High-Definition Multimedia Interface (HDMI) and display port connectors via extension card
- Five (5) x1 PCI Express connectors
- 12 USB 2.0 ports
- On-board 10/100/1000 Mb/s Ethernet
- One (1) RJ45 connector
- One (1) serial IrDA (infrared) port

Board Peripheral Features (continued)

- PS/2 port keyboard and mouse
- Scan matrix keyboard header
- XDP debug port
- One (1) Intel® High-Definition Audio[4] MDC header
- Four (4) SATA ports
- PCI support via extension card
- LPC connector
- Port 80 header

Included in the Kit

- Development board
- Memory (see Order Information)
- HDMI and display port extension card
- PCI extension card
- 80 GB SATA hard drive and DVD SATA drive
- Power supply
- Pre-installed jumpers
- BIOS pre-installed in flash memory on the SPI interface
- Drivers CD

Software Overview

The following independent operating systems and BIOS vendors support platforms based on the Intel Core 2 Duo processor and Mobile Intel 4 Series Express chipset family.

- Operating systems:
  - Microsoft Windows* XP SP2, XP Embedded SP2, Vista,* WEPOS SP2,* and CE 6.0
  - Wind River VxWorks* and Linux*
  - Red Hat Enterprise Linux* and Embedded Linux*
  - Red Flag Linux*
  - SUSE Linux*
- BIOS vendors:
  - American Megatrends AMIBIOS*
  - Phoenix Technologies, Ltd.
  - Insyde Software
  - General Software, Inc.

Intel strives to provide customers with a complete development environment supporting customer applications and operating systems. Any software provided in this development kit is subject to change without notice. Customers are encouraged to check for software updates at intel.com/design/intarch/devkits/index.htm.

Order Information

Product Name	Product Code	Ships to	Processor Options[5]	Memory Options
Intel® Core™2 Duo processor and Mobile Intel® GM45 Express chipset development kit	EMBC2DGM45DR2MK	North America	Intel® Core™2 Duo processor T9400[Δ] 2.53 GHz, 1066 MHz FSB	Two DDR2 system memory SO-DIMM slots, one SO-DIMM included
	EMBC2DGM45DR2DK	Non-North American Countries		
	EMBC2DGM45DR3MK	North America		Two DDR3 system memory SO-DIMM slots, one SO-DIMM included
	EMBC2DGM45DR3DK	Non-North American Countries		
Intel® Core™2 Duo processor and Mobile Intel® GS45 Express chipset development kit	EMBC2DGM45FHLMK	North America	Intel® Core™2 Duo processor SL9400[Δ] 1.86 GHz, 1066 MHz FSB	One DDR3 system memory SO-DIMM slot with 512 MB DDR3 system memory down
	EMBC2DGM45FHLDK	Non-North American Countries		
	EMBC2DGM45FHUMK	North America	Intel® Core™2 Duo processor SU9400[Δ3] 1.4 GHz, 800 MHz FSB	
	EMBC2DGM45FHUDK	Non-North American Countries		

Intel in Embedded and Communications: intel.com/go/embedded

[Δ] Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See http://www.intel.com/products/processor_number for details.

[1] Intel® Active Management Technology requires a system with a Mobile Intel® GM45 Express chipset, Intel® PRO/1000 PM network connection and appropriate third-party software. The system must be plugged into a power source and connected to a LAN.

[2] Intel® Matrix Storage Technology requires a motherboard with the Intel® NH82801IEM (ICH9M-Enhanced) or Intel® NH82801IBM (ICH9M) I/O Controller Hub system. RAID controller in the BIOS must be enabled and the Intel Matrix Storage Technology software driver installed. Please consult your system vendor for more information.

[3] The Intel® Core™2 Duo processor SU9400 at 1.4 GHz is not on the Intel® embedded roadmap and therefore does not have the embedded life cycle support. The SU9300 at 1.2 GHz is on the Intel embedded roadmap and therefore features 7-year embedded life cycle support.

[4] Intel® High Definition Audio requires a system with supporting chipset and motherboard with appropriate codec and the necessary drivers installed. System sound quality will vary depending on codec, drivers and speakers.

[5] The following processors are also supported. Please contact your Intel sales representative for more information.
- Intel® Core™2 Duo Processor SP9300[Δ] at 2.26 GHz, 1066 MHz FSB
- Intel® Core™2 Duo Processor SU9300[Δ] at 1.2 GHz, 800 MHz FSB

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