

### Features

- Intel® Core™2 Duo processor (up to 2.26 GHz)
- Intel® GS45 and ICH9M-SFF chipset
- Up to 8 GB DDR3 SDRAM at 1066 MHz
- Six PCIe x1, one PCIe x16 graphic (or General Purpose x8, x4 or x1)
- Single/dual channel 18/24-bit LVDS and TV-out (SDTV and HDTV)
- SATA-300, IDE (PATA), Gigabit LAN, USB 2.0

### Specifications

#### Core System

CPU	<p><b>Penryn SFF BGA type</b></p> <p>Intel® Core™2 Duo SP9300, FSB 1066, 2.26 GHz with 6MB L2 cache, 25 Watt</p> <p>Intel® Core™2 Duo SL9400, FSB 1066, LV 1.86 GHz with 6MB L2 cache, 17 Watt</p> <p>Intel® Core™2 Duo SU9300, FSB 800, ULV 1.2 GHz with 3MB L2 cache, 10 Watt</p> <p>Intel® Celeron® M 722, FSB 800, ULV 1.2GHz with 1MB L2 cache, 5.5 Watt</p>
Memory	Dual stacked SODIMM socket memory supporting dual channel memory bandwidth, for max 8 GB of non-ECC, 800/1066 MHz DDR3
Chipset	Intel® GS45 Express Graphic Memory Controller Hub SFF (Small Form Factor) and Intel® I/O Controller Hub ICH9M-SFF
BIOS	AMI with CMOS backup in 16 Mbit SPI BIOS
Hardware Monitor	Supply voltages and CPU temperature
Watchdog Timer	programmable timer ranges to generate RESET
Expansion Busses	<p>Graphics PCI Express x16 bus for SDVO/HDMI/DisplayPort or General Purpose PCI Express either x8 / x4 / x1</p> <p>6 PCI Express x1 (0/1/2/3/4 are free, 5 is occupied by GbE LAN), 0/1/2/3 x1 can be optionally configured as 1 x4</p> <p>32-bit PCI 2.3 at 33MHz, supporting 4 bus masters</p> <p>LPC, SMBus, I<sup>2</sup>C</p>

#### Video

Chipset	GS45 GMCH integrated Mobile Intel® Graphics Media Accelerator 4500MHD with core render clock 533-MHz @ 1.05-V core voltage or 266 MHz @ 1.025 L.P. Mode
Integrated Video	Intel® Dynamic Video Memory Technology (Intel® DVMT 5.0)
Feature Support	<p>Video Capture via x1 concurrent PCI Express port</p> <p>PAVP (Protected Audio-Video Path) support for Protected Intel® HD Audio Playback</p> <p>High performance MPEG-2 decoding</p> <p>WMV9 (VC-1) and H.264 (AVC) support</p> <p>Hardware acceleration for MPEG2 VLD/iDCT</p> <p>Microsoft DirectX 10 support</p> <p>Blu-ray support @ 40 Mb/s</p> <p>Hardware motion compensation</p> <p>Intermediate Z in classic rendering</p>
CRT Interface	Analog CRT support by 300MHz DAC
LVDS Interface	Analog Monitor support up to QXGA, supports CRT hot plug
TV-out	Single or dual channel 18/24-bit at 25-112 MHz
TV-out	NTSC/PAL up to 1024x768 resolution supported HDTV 480p/720p/1080i/1080p modes support (without Macrovision)

#### Audio

Chipset	Integrated in Intel® ICH9M
Audio Codec	HDA type codec on carrier
HDMI	same Audio routed to HDMI interface

#### LAN

Chipset	Integrated in Intel® ICH9M with Intel® 82567LM PHY
Interface	10/100/1000 Mbps Ethernet

#### Multi I/O

Chipset	Integrated in Intel® ICH9M
USB	Supports up to eight ports USB v. 2.0
SATA	Four port SATA300 with (optional) support for RAID 0,1,5,10
PATA	SATA to PATA JM20330 controller on SATA channel 3, MASTER only

#### Super I/O

Connected to LPC bus on carrier if needed

#### TPM

Chipset	Infineon SLB9635TT1.2
Type	TPM 1.2

#### Power Specifications

Input Power	AT mode (12 V +/- 5%) and ATX mode (12 V and 5 Vsb +/- 5%)
Power States	Supports S0, S1, S3, S4, S5
Power Consumption	14.5 W (with Core™2 Duo SU9300 and 2 GB memory typical)

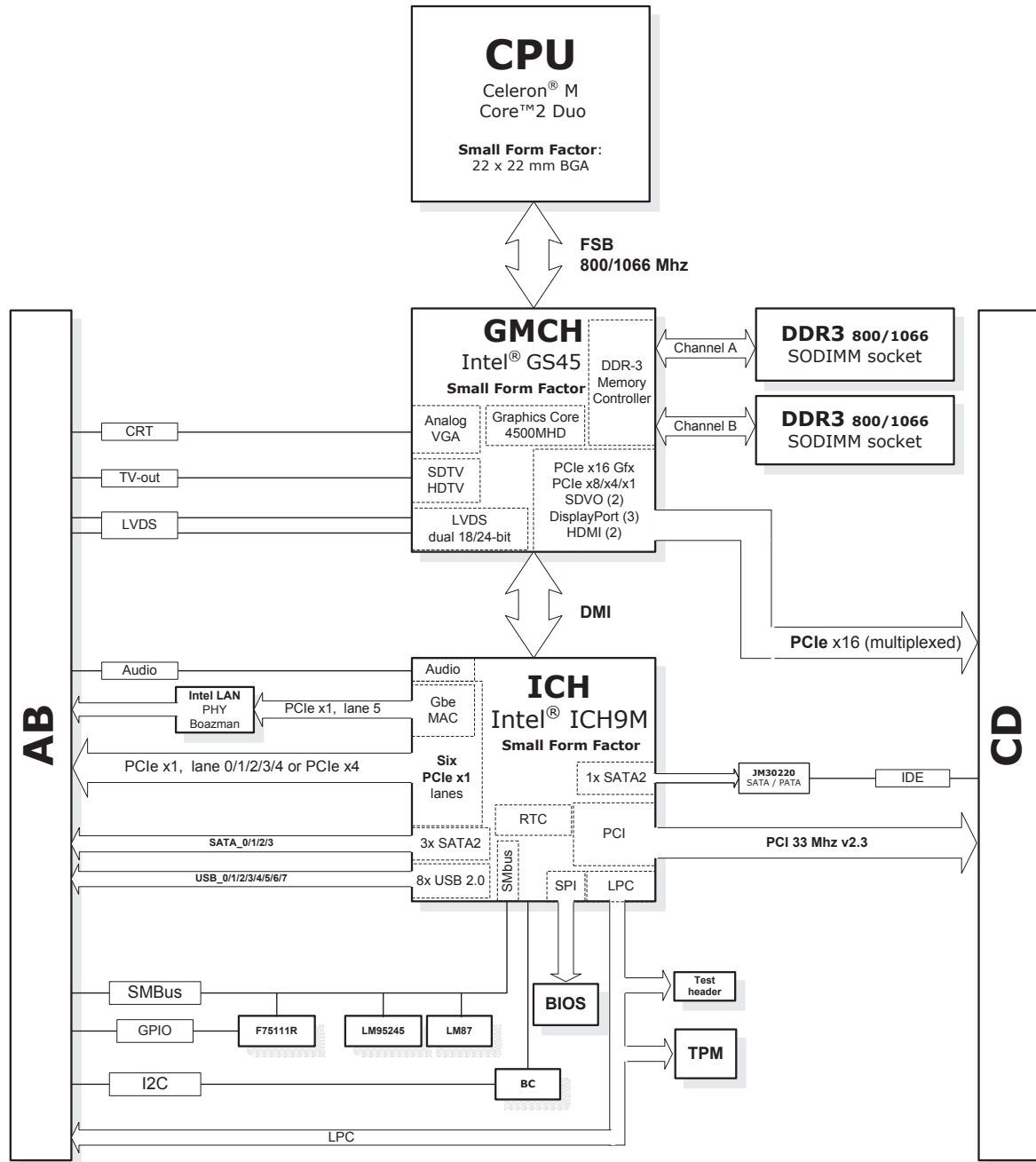
#### Mechanical and Environmental

Operating Temp.	0 to 60°C
Storage Temp.	-20°C to 80°C
Humidity	90% at 60°C
Shock	15G peak-to-peak, 11ms duration, non-operation
Vibration	Non-operation: 1.88 Grms, 5-500 Hz, each axis Operation: 0.5 Grms, 5-500 Hz, each axis
Form Factor	COM Express™ Type 2, standard form factor, 95 mm x 125 mm
Certifications	CE, FCC

#### Operating Systems

Standard Support	<p>Windows® XP 32/64-bit</p> <p>Windows® Vista 32/64-bit</p> <p>Windows® Server 2003/2008</p> <p>Linux® 2.6.x</p>
Extended Support	<p>Embedded XP BSP</p> <p>Linux® 2.6.x BSP</p> <p>WinCE 6.0 BSP</p> <p>AIDI I<sup>2</sup>C Library for Win32, WinCE and Linux®</p>

## Functional Diagram



## Ordering Information

### Modules

Model Number	Description/Configuration
Express-MV-SP9300	COM Express™ Module with Intel® Core™2 Duo processor SP9300 at 2.26 GHz
Express-MV-SL9400	COM Express™ Module with LV Intel® Core™2 Duo processor SL9400 at 1.86 GHz
Express-MV-SU9300	COM Express™ Module with ULV Intel® Core™2 Duo processor SU9300 at 1.20 GHz
Express-MV-722	COM Express™ Module with ULV Intel® Celeron® M processor 722 at 1.20 GHz

### Accessories

Model Number	Description/Configuration
<b>Heat Spreaders</b>	
HTS-MV-B	Heatspreader for Express-MV (BGA CPU) with threaded standoffs
<b>Passive Heatsinks</b>	
THS-MV-BL	Low Profile Heatsink for Express-MV (BGA CPU) with threaded standoffs for bottom mounting with long cooling fins (incl screws for 5 and 8 mm btb)
<b>Heatsink with Active Cooling</b>	
THSF-MV-B	High Performance Heatsink with Fan for Express-MV (BGA CPU) with threaded standoffs