

COM Express® Basic Module

High End

conga-BM45

45nm Intel® Core™2 Duo
Processors up to 2.53 GHz

Provides up to 8 GByte dual
channel DDR3 DRAM

Intel AMT 4.0

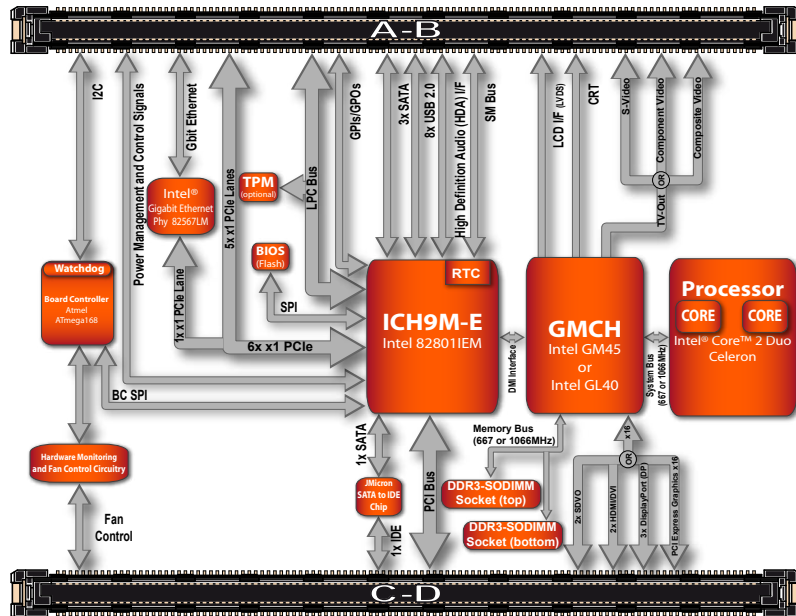
COM 
Express®



Formfactor	COM Express™ Basic, (95 x 125 mm), Type II Connector Layout
CPU	Intel® Core™ 2 Duo T9400, 2.53 GHz (6M cache, 1066 MHz FSB, 45nm), Socket mPGA479M Intel® Core™ 2 Duo P8400, 2.26 GHz (3M cache, 1066 MHz FSB, 45nm), Socket mPGA479M Intel® Celeron® T3100 1.9GHz (1M cache, 800MHz FSB, 45nm). Intel® Celeron™ 575, 2.0 GHz (1M cache, 667 MHz FSB, 45nm), no PEG Support (with Intel® GL40 Chipset)
DRAM	2 Sockets, SO-DIMM DDR3 1067 MHz, up to 8 GByte
Chipset	Graphics & Memory Controller Hub: Intel® GM45/GL40 I/O Controller Hub: Intel® ICH9M-E
Ethernet	Integrated within the ICH9M-E, 10/100/1000 LAN MAC + Intel® 82567 Phy
I/O Interfaces	5x PCI Express™ lanes, PCI Express Graphics (PEG), 3x Serial ATA* (AHCI) supporting RAID 0/1, 1x EIDE (UDMA-66/100) optional, 2x ExpressCard* (uses 2x USB & 2x PCI Express), 8x USB 2.0 (EHCI), PCI bus 33 MHz Rev. 2.3, LPC bus, I²C bus (fast mode, 400 kHz, multi-master)
Sound	Digital High Definition Audio Interface with support for multiple audio codecs
Graphics	Mobile Intel® Graphics Media Accelerator 4500MHD, graphics core speeds up to 533 MHz, improved graphics and 3D rendering performance, Intel® Dynamic Video Memory Technology (Intel® DVMT 5.0) OpenGL 2.0 and DirectX10 support, Two independent pipelines for full dual view support
Motion Video Support	High performance hardware MPEG-2 decoding, WMV9 (VC-1) and H.264 (AVC) support Blu-ray support @ 40 Mb/s, hardware motion compensation
Flat panel Interface	Dual channel 112 MHz LVDS transmitter, Supports flat panels with 1x18, 2x18, 1x24, 2x24 bit interface, VESA mappings, resolutions from 640x480 up to 1920x1200, Automatic Panel Detection via EDID/EPI
DisplayPort (DP)	Supports two DisplayPorts multiplexed with the PCI Express Graphics interface 1.62 Gb/s and 2.7 Gb/s, 1/2/4 data lanes, 8B10B-coding, Hot-Plug detect support
HDMI	Single TMDS Link, only support for RGB, Video support for CEA modes 480i/p, 576i/p, 720p, 1080i/p and PC modes via dot clock
CRT Interface	300 MHz RAMDAC, resolutions up to QXGA
AUX Output	Supports two SDVO Ports multiplexed with the PCI Express Graphics interface
TV Out	Onboard TV encoder, supports HDTV (420p, 720p and 1080i), supports component and S-video
congatec Board Controller	Multi Stage Watchdog, non-volatile User Data Storage, Manufacturing and Board Information, Board Statistics, BIOS Setup Data Backup, I²C bus (fast mode, 400 kHz, multi-master), Power Loss Control
Embedded BIOS Features	OEM Logo, OEM CMOS Defaults, LCD Control, Display Auto Detection, Backlight Control, Flash Update, Based on AMIBIOS®
Security	The conga-BM45 can be optionally equipped with a discrete "Trusted Platform Module" (TPM). It is capable of calculating efficient hash and RSA algorithms with key lengths up to 2,048 bits and includes a real random number generator. Security sensitive applications such as gaming and e commerce will benefit also with improved authentication, integrity and confidence levels.
Power Management	ACPI 3.0 with battery support
Operating Systems	Microsoft® Windows 8, Microsoft® Windows 7, Microsoft® Windows XP, Microsoft® Windows® embedded Standard, Linux
Power Consumption	Typ. application: TBD W @ 12V, see manual for full details, CMOS Battery Backup
Temperature	Operating: 0 .. +60°C Storage: -20 .. +80°C
Humidity	Operating: 10 - 90% r. H. non cond. Storage: 5 - 95% r. H. non cond.
Size	95 x 125 mm (3.74" x 4.92")

Block Diagram conga-BM45

Order Information conga-BM45



Article	PN	Description
conga-BM45/T9400	013130	Intel GM45 and Intel Core2Duo T9400, CPU with 2.53 GHz, 6 MB L2-Cache and 1066 Mhz FSB
conga-BM45/P8400	013140	Intel GM45 and Intel Core2Duo, CPU with 2.26 Ghz, 3 MB L2-Cache and 1066 MHz FSB
conga-BM45/575	013132	Intel GL40 and Intel Celeron M 575, CPU with 2.0 Ghz, 1 MB L2-Cache and 667 MHz FSB. No PEG-Port!
conga-BM45/T3100	013135	Intel Celeron Processor T3100 1.9GHz CPU T3100, 1MByte L2 cache and 800MHz FSB.
conga-BM45/HSP-HP-B	013168	Standard heatspreader for COM Express module conga-BM45 with integrated heat pipes. All standoffs are with 2.7mm bore hole.
conga-BM45/HSP-HP-T	013169	Standard heatspreader for COM Express module conga-BM45 with integrated heat pipes. All standoffs are M2.5mm thread.
DDR3-SODIMM-1333 (1GB)	068751	DDR3 SODIMM memory module with 1333 MT/s (PC3-10600) and 1GB RAM
DDR3-SODIMM-1333 (2GB)	068761	DDR3 SODIMM memory module with 1333 MT/s (PC3-10600) and 2GB RAM
DDR3-SODIMM-1333 (4GB)	068764	DDR3 SODIMM memory module with 1333 MT/s (PC3-10600) and 4GB RAM

Engineering Tools / Accessories for COM Express*

conga-CEVAL	065749	Evaluation carrier board for COM-Express-modules
conga-Cdebug	047854	COM-Express debugging platform. Including cable for COM, PS/2 and VGA.
conga-CKIT	064714	COM-Express-Starterkit, incl. conga-CEVAL, conga-CDEBUG, conga-FPA1 (PN: 024241), Dual DVI-D ADD2 card, Power supply, USB-Stick, ... Without COM Express-module
conga-LDVI/EPI	011115	LVDS to DVI converter board for digital flat panels with onboard EEPROM
conga-HDMI/Display Port adapter	500014	The conga-HDMI/DisplayPort adapter is used to convert the chipset graphic ports Port-B, Port-C and Port-D to the HDMI or DisplayPort Interface
Single DVI-D ADD2 Card	058500	ADD2 display adapter card with single DVI-D digital output. Suitable for all Intel based platforms that support Serial Digital Display Outputs (SDVO) on the standard, x16 PCI Express Graphics (PEG) port.
Dual DVI-D ADD2 Card	013226	ADD2 display adapter card with dual independent DVI-D output. Suitable for all Intel based platforms that support Serial Digital Display Outputs (SDVO) on the standard, x16 PCI Express Graphics (PEG) port.
conga-FPA2	047250	Flatpanel prototype adapter to develop your own flatpanel adapter Including cables set.
COM-Express-carrierboard-Socket-5	400007	Connector for COM-Express carrier boards, height 5mm, packing unit 4 pieces
COM-Express-carrierboard-Socket-8	400004	Connector for COM-Express carrier boards, height 8mm, packing unit 4 pieces