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COM Express® Compact Module

Superior Graphics Performance

conga-CS45

High Graphics Performance

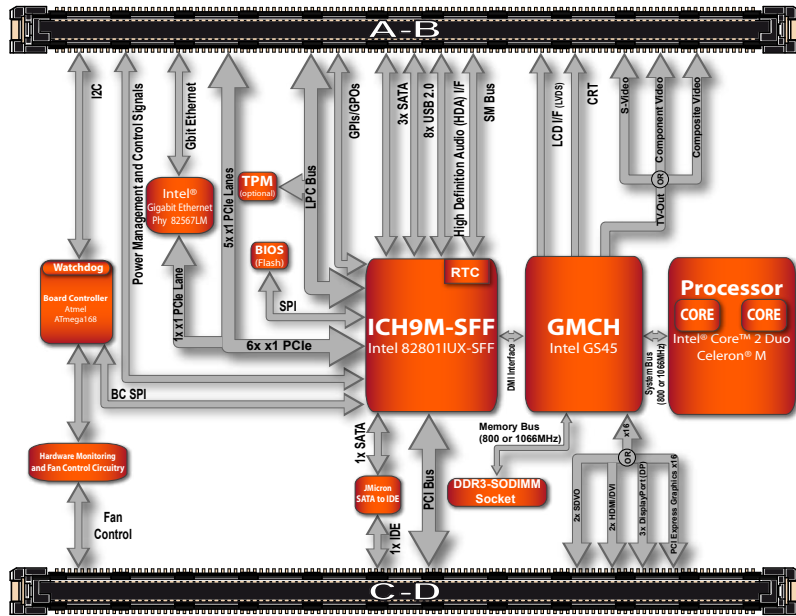**Features Intel® Core™ 2 Duo processor based on 45nm structure**

Single channel DDR3 memory up to 4GB with 1067MHz

COM Express®

Formfactor	**COM Express™ Compact, (95 x 95 mm), Type II Connector Layout**
CPU	Intel® Core™ 2 Duo SU9300, 1.20 GHz (3M cache, 800 MHz FSB, TDP 10W) Intel® Core™ 2 Duo SL9400, 1.86 GHz (6M cache, 1066 MHz FSB, TDP 17W) Intel® Celeron® M ULV 722, 1.20 GHz (1M cache, 800 MHz FSB, TDP 5.5W) Intel® Celeron® M ULV 723, 1.20 GHz (1M cache, 800 MHz FSB, TDP 10W)
DRAM	SO-DIMM DDR3 1067/800 MHz, up to 4 GByte
Chipset	Graphics & Memory Controller Hub: Intel® GS45 I/O Controller Hub: Intel® 82801IUX (ICH9ME-SFF)
Ethernet	Intel® 82567LM Gigabit Ethernet Phy
I/O Interfaces	5x PCI Express™ lanes, PCI Express Graphics (PEG x16), 3x Serial ATA® (AHCI) supporting RAID 0/1, 1x EIDE (UDMA-66/100) optional, 2x Express-Card® (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, High performance hardware MPEG-2 decoding, WMV9 (VC-1) and H.264 (AVC) support Blu-ray support @ 40 Mb/s, hardware motion compensation
LVDS	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 AMIBIOS8®
Security	The conga-CS45 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® Windows7, Microsoft® Windows XP, Microsoft® Windows® embedded Standard, Linux 2.6, QNX 6.x
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 95 mm (3.74" x 3.74")

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Article	PN	Description
conga-CS45/SL9400	055520	Intel Core2Duo SL9400, CPU with 1.86GHz, 6 MB L2-Cache and 1066 MHz FSB
conga-CS45/SU9300	055535	Intel Core2Duo SU9300, CPU with 1.2 GHz, 3 MB L2-Cache and 800 MHz FSB.
conga-CS45/723	055524	Intel Celeron M 723, ULV-CPU with 1.2 GHz, 1 MB L2-Cache and 800 MHz FSB.
conga-CS45/722	055525	Intel Celeron M 722, ULV-CPU with 1.2 GHz, 1 MB L2-Cache and 800 MHz FSB
conga-CS45/HSP-B	055530	Heatspreader, Standoff with 2.7mm bore hole.
conga-CS45/HSP-T	055540	Heatspreader, Standoff with M2.5mm thread
DDR3-SODIMM-1066 (1GB)	068750	DDR3-SODIMM memory module with 1 GB RAM (1066 MT/s)
DDR3-SODIMM-1066 (2GB)	068760	DDR3-SODIMM memory module with 2 GB RAM (1066 MT/s)
DDR3-SODIMM-1066 (4GB)	068765	DDR3-SODIMM memory module with 4 GB RAM (1066 MT/s)

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-MCB	020715	Mini Carrier Board for COM Express with smart battery manager interface for mobile applications.
conga-SBM²C-module	014141	SMART Battery Manager Module for COM Express
conga-SBM²C-kit	029874	Starterkit to evaluate SBM-Features for COM Express with SMART-Battery Manager Module and cable set
conga-SBM²C Licence and Design Kit	025478	SMART Battery Manager Module Design Kit for COM including licence agreement for costumer integration, Hardware design files (Schematics, Bill of Material), Battery Manager Firmware (incl. commented source code), AVR-Programming Tool AT90 JTAG ICE MKII
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 fo convert the chipset graphic ports Port-B, Port-C and Port-D to the HDMI or DisplayPort Interface
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