FALCON

COM Express Mini
CPU Module

The Falcon is a very small Computer on Module (COM) based on the COM Express® mini form factor. Driven by a low power Intel® Atom™ E6xxT processor, the Falcon provides up to 1.6 GHz performance. Designed for harsh environments, the Falcon features fanless operation from -40° to +85°C and is built to withstand extreme shock and vibration. Standard on-board features include up to 2 GB soldered-on RAM and a microSD™ socket. The standard Type 10 pin-out provides SDVO, LVDS, GbE, SATA, seven USB ports, three x1 PCIe lanes, two COM interfaces, HD audio, LPC, SDIO, GPIO, SMBus, and I²C to the baseboard; an auxiliary board-to-board connector provides two additional COM interfaces, two GPIO lines, and a CAN interface. Trusted Platform Module (TPM) security hardware is available as an on-board option.

COM Express Mini Form Factor
Compact 55 mm x 84 mm format with Type 10 pin-out.

Intel Atom E6xxT Processor
Up to 1.6 GHz performance with low power consumption.

Fanless
No moving parts required for CPU cooling.

MIL-STD-202G
Qualified for high shock / vibration environments.

Video
High-performance video with SDVO and LVDS outputs.

Network
Gigabit Ethernet (GbE) with remote boot support.

RAM
Up to 2 GB soldered-on RAM.

Trusted Platform Module
Hardware-level security option.

USB
Seven USB ports support keyboard, mouse, and other devices.

COM
Up to four serial ports.

I/O Interfaces
SATA, PCIe, HD audio, LPC, SDIO, GPIO, SMBus, I²C, and CAN.

Flash Memory
On-board microSD socket and SDIO interface for plug-in flash storage.

Industrial Temperature
Fully qualified -40° to +85°C operation for harsh environments.

Ordering Information

Model	Processor	Speed	RAM
VL-COMm-26EA*	Intel Atom E620T	0.6 GHz	512 MB
VL-COMm-26EB	Intel Atom E640T	1.0 GHz	1 GB
VL-COMm-26EC	Intel Atom E680T	1.6 GHz	1 GB
VL-COMm-26ED*	Intel Atom E680T	1.6 GHz	2 GB

** Special order*

§ Power specifications represent operation at +25°C with +12V supply running Windows 7 with LVDS display, SATA, GbE, and USB keyboard/mouse. Typical power computed as the mean value of Idle and Maximum power specifications. Maximum power is measured with 95% CPU utilization.

† IEEE 1588 Precision Time Protocol (PTP) compatible

‡ COM1 and COM2 ports are available only when the auxiliary board-to-board connector is used

REV 06/13/12

Specifications

Form Factor	COM Express mini (Type 10): 55 mm x 84 mm (2.17" x 3.31")			
Processor	Intel Atom E6xxT Tunnel Creek platform. 512K 8-way L2 cache. Support for Intel Hyper-Threading Technology (HT) and Intel Virtualization Technology (VT).			
Chipset	Intel EG20T (TopCliff) Platform Controller Hub (PCH)			
Input Power	8V–17V			
Power Requirements (@ +12V) §	**Model**	**Idle**	**Typical**	**Max.**
	VL-COMm-26EA	7.2W	7.4W	7.6W
	VL-COMm-26EB	7.3W	8.0W	8.7W
	VL-COMm-26EC	7.6W	8.8W	10.1W
	VL-COMm-26ED	7.6W	8.9W	10.1W
System Reset & Hardware Monitors	All voltage rails monitored. Watchdog timer with programmable timeout (1 µS to 10 min.). Push-button sleep, reset, and power.			
Manufacturing Standards	**Standard**	IPC-A-610 Class 2 modified		
	Custom	IPC-A-610 Class 3 modified		
Regulatory Compliance	ITAR, RoHS (2002/95/CE)			
Operating Temperature	-40° to +85°C			
Storage Temperature	-40° to +85°C			
Cooling	Fanless. Heatsink and heat plate options available.			
Airflow Requirements	Dependent on thermal solution selected. Zero airflow required with heat plate solution.			
Thermal Shock	5°C/min. over operating temperature			
Humidity	Less than 95%, noncondensing			
Vibration, Sinusoidal Sweep	MIL-STD-202G, Method 204, Modified Condition B: 10g constant acceleration from 5 to 2000 Hz, 20 min. per axis			
Vibration, Random	MIL-STD-202G, Method 214A, Condition B: 7.56g rms, 15 min. per axis			
Mechanical Shock	MIL-STD-202G, Method 213B, Condition J: 30g half-sine, 11 msec. duration per axis			
TPM (optional)	Trusted Platform Module chip provides hardware-level security functions			
System RAM	Up to 2 GB soldered-on DDR2 SDRAM. 800 MT/s.			
Video	Integrated high-performance video. Intel GMA600 graphics core supports advanced 2D/3D graphics and hardware-accelerated video encode and decode.			
VRAM	Up to 256 MB + 384 MB shared DRAM			
Desktop Display Interface	SDVO supports a variety of signaling interfaces including VGA and DVI. Up to 1920 x 1080 (50 Hz) or 1280 x 1024 (85 Hz).			
OEM Flat Panel Interface	Single-channel LVDS interface. 18/24-bit. Up to 1280 x 768 (60 Hz). CMOS-selectable TFT panel types. Support for LVDS Backlight Control.			
Rotating Drive	Two SATA (Revision 2.0) ports			
Flash / SSD	microSD socket supports up to 32 GB. SDIO interface supports SD, SDIO, and MMC.			
Ethernet †	One autodetect 10BaseT/100BaseTX/1000BaseT port			
Network Boot Option	Via BIOS extension			
USB	Six host and one client USB 2.0 ports			
COM 3 / 4 ‡	RS-232/422/485 selectable. 16C550 compatible. 1 Mbps max.			
Audio	Intel High-Definition Audio (HDA)			
PCIe	Three x1 PCIe (Gen 1) lanes			
TPM	Optional support for Intel Trusted Platform Module 1.2 devices			
GPIO	Four user I/O lines			
SMBus	1 MHz			
LPC	33 MHz			
CAN †	2-wire CAN port			
COM 1	RS-232/422/485 selectable. 16C550 compatible. Handshake lines. 4 Mbps max.			
COM 2	RS-232/422/485 selectable. 16C550 compatible. 1 Mbps max.			
GPIO	Two user I/O lines			
BIOS	AMI Aptio UEFI BIOS with OEM enhancements. Field reprogrammable. Support for USB keyboard/mouse and USB boot. User-configurable CMOS defaults.			
Sleep Mode	ACPI 3.0. Support for S0, S3, S4, and S5 suspend states.			
Operating Systems	Compatible with most x86 operating systems including Windows, Windows Embedded, Linux, and VxWorks			

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