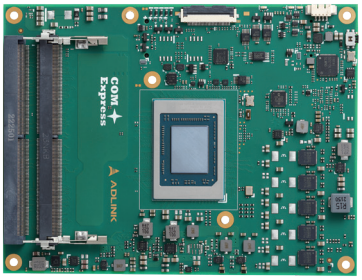
ADLINK
LEADING EDGE COMPUTING

Express-VR7

COM Express Basic Size Type 7 Module with AMD Embedded Ryzen V3000

Preliminary



Features

- 8 Cores at 15W, 45W — Best Performance per Watt in its class
- Up to 64GB DDR5 SO-DIMM, 4800 MT/s ECC
- 2x 10G Ethernet and 1x 2.5G Ethernet
- 14x PCIe Gen4 lanes
- Extreme Rugged operating temperature: -40°C to 85°C (build option, selected SKU)

Specifications

Core System	CPU	AMD Embedded Ryzen V3000 Processor • V3C48 3.3/3.8GHz 8 Cores / 16 Threads 45W • V3C44 3.5/3.8GHz 4 Cores / 8 Threads 45W • V3C18I 1.9/3.8GHz 8 Cores / 16 Threads 15W • V3C16 2.0/3.8GHz 6 Cores /12Threads 15W • V3C14 2.3/3.8GHz 4 Cores / 8 Threads 15W Note: Availability of features may vary between processor SKUs. Note: V3C18I could be used for extreme temperature (TBC)
	Memory	Dual channel up to 4800 MT/s ECC/non-ECC DDR5 memory up to 64GB (2x 32GB) in two SODIMM sockets Two SO-DIMM on top side
	Embedded BIOS	AMI UEFI with CMOS backup in 32 or 16MB (TBC) SPI BIOS (dual BIOS by build option)
	Cache	TBC
	Expansion Busses	All Gen4 speed • 8 PCI Express Gen4: Lanes 16-23 (configurable to one x8, two x4, two controller) • 4 PCI Express Gen4: Lanes 0-3 (configurable to four x1, two x2, one x4, four controller) • 2 PCI Express Gen4: Lanes 4-5 (configurable to one x1, one x2, one controller) • LPC bus (through an ESPI to LPC bridge IC), SMBus (system) , I^2C (user), GP_SPU (user, project basis)
	SEMA Board Controller	Supports : Voltage/current monitoring, power sequence debug support, AT/ATX mode control, logistics and forensic information, flat panel control, general purpose I^2C, watchdog timer, fan control and failsafe BIOS (dual BIOS by build option)
	Debug Headers	40-pin multipurpose flat cable connector for use with DB40-HPC debug module providing BIOS POST code LED, EC access, SPI BIOS flashing, power testpoints, debug LEDs

Specifications

10G Ethernet	Intel® MAC/Controller	AMD 10G Ethernet controller integrated in CPU
	Interface	2x 10GBASE-KR and its sideband signals Note: SGMII and additional 1x MDIO/MDC supported by project basis
Ethernet	Intel® MAC/Controller	Intel Ethernet controller i226 series
	Interface	2.5GbE and 1000/100/10 Mbit/s Ethernet connection
Multi I/O and Storage	USB	4x USB 3.x/2.0/1.1 (USB 0,1,2,3)
	SATA	2x SATA 6Gb/s (SATA 0,1)
	Serial	2x UART ports with console redirection
	GPIO/SD	4x GPO and 4x GPI (GPI with interrupt TBC)
Module Management Controller	Supports: IPMB (in conjunction with carrier BMC for remote management Controller applications) by build option (TBC)	
Super I/O	Supported on carrier if needed (standard support for W83627DHG-P, other Super I/O supported by project basis)	
TPM	Chipset	Infineon
	Type	TPM 2.0 (SPI based)
Power	Standard Input	ATX: 12V±5% / 5Vsb ±5%; or AT: 12V±5%
	Management	ACPI 5.0 compliant
	Power States	C1-C6, S0, S1, S3, S4, S5 , S5 ECO mode (Wake on USB S3/S4, WOL S3/S4/S5)
Mechanical and Environmental	Form Factor	PICMG COM.0: Rev 3.1 Type 7
	Dimension	Basic size: 125 mm x 95 mm
	Operating Temperature	Standard: 0°C to 60°C (Storage: -20°C to 80°C) Extreme Rugged: -45°C to 85°C (build option, selected SKUs) (Storage: -40°C to 85°C) (TBC)
	Humidity	5-90% RH operating, non-condensing 5-95% RH storage (and operating with conformal coating)
	Shock and Vibration	IEC 60068-2-64 and IEC-60068-2-27 MIL-STD-202F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D
	HALT	Thermal Stress, Vibration Stress, Thermal Shock and Combined Test
Operating Systems	Standard Support	Yocto Linux, Ubuntu 20.04.3 LTS (TBC)
	Extended Support (BSP)	Yocto project based Linux

Ordering Information

Module	
Express-VR7-V3C18I	Basic COM Express Type 7 module with AMD Embedded Ryzen V3C18I, 8-core at 15W

*For processor SKUs not listed, please contact your ADLINK representative for availability.

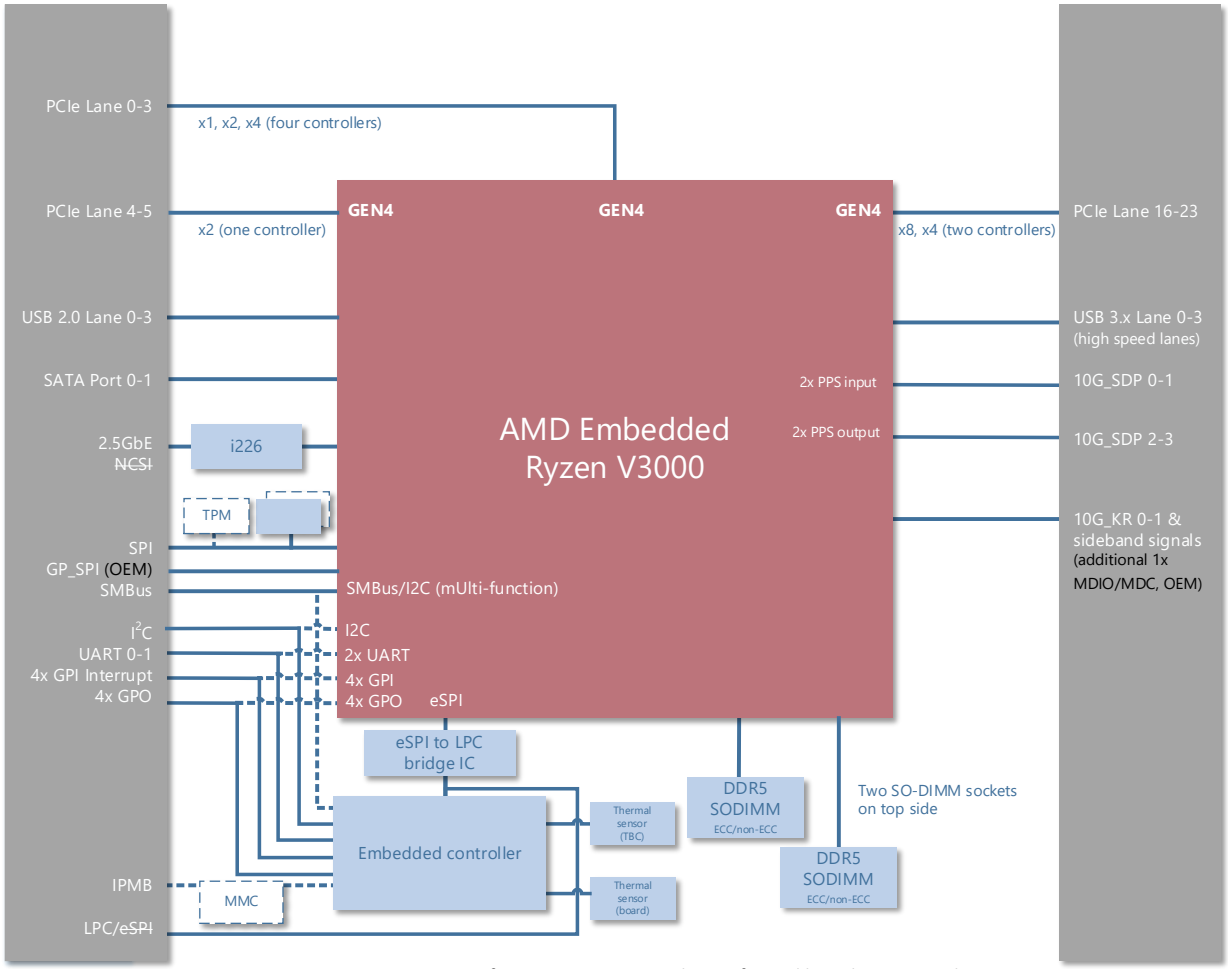
Accessories

Heat Spreaders	
HTS-VR7-B	Heatspreader for Express-VR7 with threaded standoffs for bottom mounting
HTS-VR7-BT	Heatspreader for Express-VR7 with through hole standoffs for top mounting
Passive Heatsinks	
THS-VR7-B	Low profile heatsink for Express-VR7 with threaded standoffs for bottom mounting
THS-VR7-BT	Low profile heatsink for Express-VR7 with through hole standoffs for top mounting
THSH-VR7-B	High profile heatsink for Express-VR7 with threaded standoffs for bottom mounting
Active Heatsinks	
THSF-VR7-B	High profile heatsink with Fan for Express-VR7 with threaded standoffs for bottom mounting

Starter Kit

VR7 COM Express Type 7 Starter Kit	TBC

Block diagram



I2C, SMBus, UART, GPIO source from EC or CPU. It can be configured based on project basis