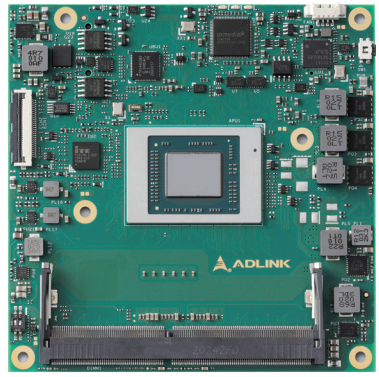
cExpress-AR

COM Express Compact Size Type 6 Module with New AMD Ryzen™ Embedded V2000 APU

Features

- Up to 8 cores based on AMD Zen 2 architecture
- Improved graphics performance (new Radeon Vega GPU)
- Up to 4x 4K displays (DP, eDP)
- 2.5GbE Ethernet, up to 16 PCIe Gen3 lanes
- Configurable TDP down to 10W (8, 6 cores)



Specifications

Core System

CPU

New AMD Ryzen™ Embedded V2000 APU - 7nm process
AMD V2748 2.9/4.25GHz, 4MB L2, 35-54W (8C/7CU)
AMD V2546 3.0/3.95GHz, 3MB L2, 35-54W (6C/6CU)
AMD V2718 1.7/4.15GHz, 4MB L2, 10-25W (8C/7CU)
AMD V2516 2.1/3.95GHz, 3MB L2, 10-25W (6C/6CU)

Memory

Dual channel up to 3200 MT/s ECC/non-ECC DDR4 memory up to 64GB in two SODIMM sockets
• ECC, non-ECC support

Embedded BIOS

AMI UEFI with CMOS backup in 32 or 16MB SPI BIOS (dual BIOS by build option

Cache

4MB L2 for V2748/V2718, 3MB L2 for V2546/V2516

Expansion Busses

6 PCIe x1 Gen3: Lanes 0/1/2/3 (configurable to x1, x2, x4) and Lanes 4/5 (x1, x2)
Note: PCIe switch by build option for additional x1 on Lanes 6/7
1 PCIe x8 Gen3: Lanes 16-23 (configurable to 1 x8, 2 x4)
LPC bus, SMBus (system) , I^2C (user)

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

30-pin multipurpose flat cable connector for use with DB-30 x86 debug module providing BIOS POST code LED, EC access, SPI BIOS flashing, power testpoints, debug LEDs

Video

GPU Feature Support

AMD Radeon™ Vega Graphics, supporting 4 independent and simultaneous display combinations of DisplayPort/HDMI/LVDS, eDP or VGA outputs (4x 4K at DP, eDP)
• Hardware encode/decode (including HEVC 10-bit)
• DirectX 12 support
• OpenGL 4.6 and ES 3.X support
• OpenCL 2.1 support

Digital Display Interface

DDI1/2/3 supporting DisplayPort 1.4, HDMI 2.1, DVI
DisplayPort 1.4, max. resolution 4096x2160@60Hz
HDMI 2.1, max. resolution 4096x2160 @60Hz
(max. resolution support dependent on carrier)

VGA

Supported by build option through DP-to-VGA IC (in place of DDI3)
Max. resolultion 1920x1200 @60Hz

LVDS

Single/dual channel 18/24-bit LVDS from eDP-to-LVDS IC
Max. resolution 1920x1200 @60Hz in dual mode

eDP

Optional 4 lane eDP1.3 support, in place of LVDS
Max. resolution 4096X2160@60Hz (max. resolution dependent on carrier)

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Specifications

Audio

Chipset
AMD Audio coprocessor integrated in APU

Audio Codec
On carrier Express-BASE6 (ALC886 standard support)

Ethernet

LAN Controller
Intel® Ethernet Controller i225 Series (V/IT versions)

Interface
2.5Gbit/s, 1000/100/10 Mbit/s Ethernet connection

Multi I/O and Storage

USB: 4x USB 3.2/2.0/1.1 (USB 0,1,2,3) and 4x USB 2.0/1.1 (USB 4,5,6,7)
SATA: 2x SATA 6Gb/s (SATA 0,1)
Serial: 2x UART ports with console redirection
GPIO: 4x GPO and 4x GPI from EC (GPI with interrupt TBC)
Note: USB 3.2 Gen2 support dependent on carrier design

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 (LPC based, build option)

Power

Standard Input
ATX: 12V±5% / 5Vsb ±5%; or AT: 12V±5%

Wide Input
ATX: 8.5-20 V / 5Vsb ±5%; or AT: 8.5-20V
Management: ACPI 5.0 compliant, Smart Battery support
Power States: S0, S3, S4, S5 , S5 ECO mode (Wake on USB S3/S4, WOL S3/S4/S5)
ECO mode: support deep S5 mode for power saving

Mechanical and Environmental

Form Factor: PICMG COM.0: Rev 3.0 Type 6
Dimensions: Compact size: 95 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 (optional, 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)

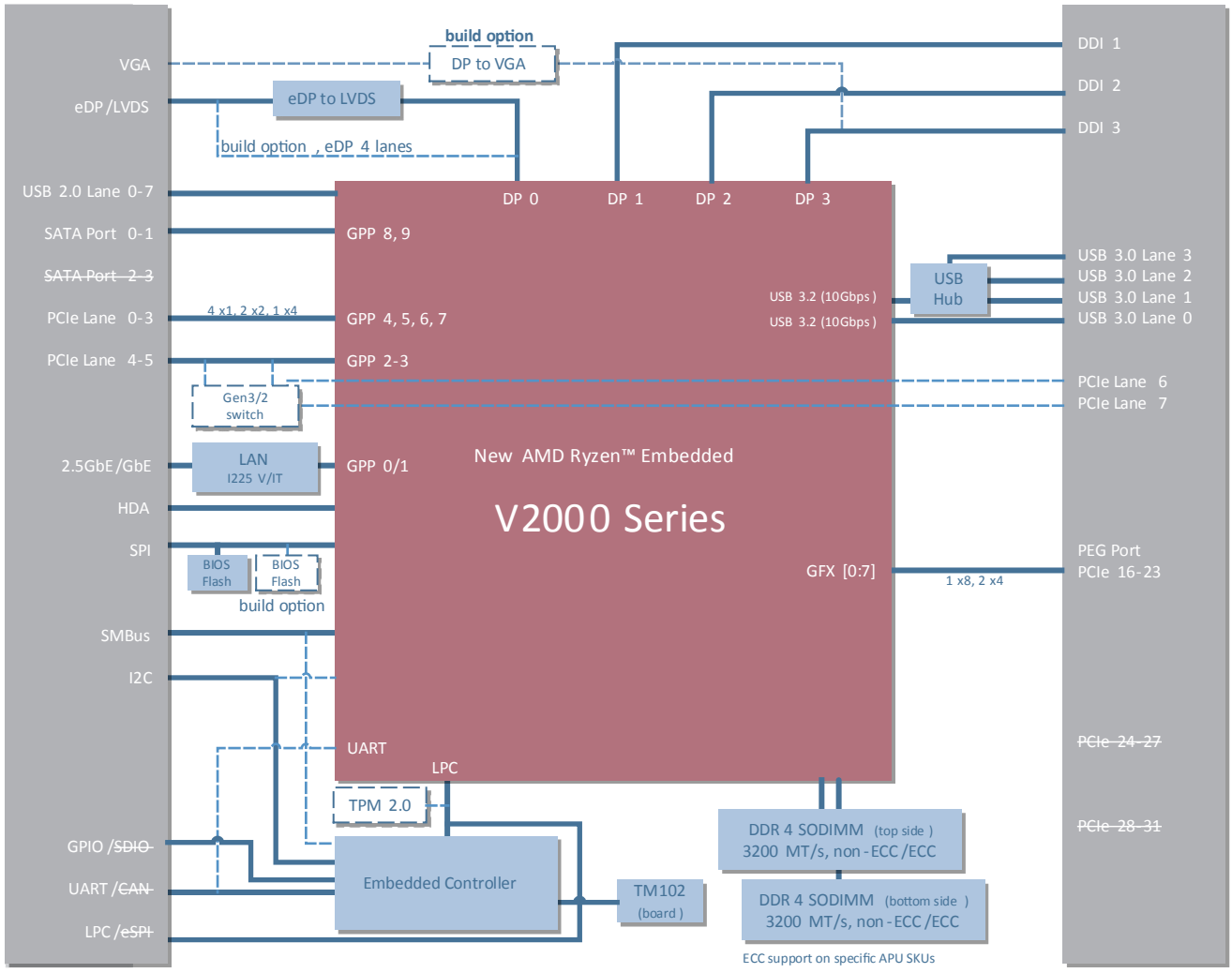
Shock and Vibration
IEC 60068-2-64 and IEC-60068-2-27
MIL-STD-202F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D

HALT
Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

Operating Systems

Standard Support
Windows 10 IOT Enterprise 64-bit, Windows 10 64-bit, Ubuntu 20.04 (planning)

Functional Diagram



Note: General Purpose Ports GPP 2-9 can support up to a maximum of 6 devices (SATA 0/1 count as one device).

cExpress-AR

Ordering Information

- **cExpress-AR-V2748**
  Compact COM Express Type 6 module with New AMD Ryzen™ V2748 at 2.9/4.15GHz, otca-core processor, Radeon™ Vega graphics with 7CU
- **cExpress-AR-V2546**
  Compact COM Express Type 6 module with New AMD Ryzen™ V2546 at 3.0/3.95GHz, hexa-core processor, Radeon™ Vega graphics with 6CU
- **cExpress-AR-V2718**
  Compact COM Express Type 6 module with New AMD Ryzen™ V2718 at 1.7/4.15GHz, otca-core processor, Radeon™ Vega graphics with 7CU
- **cExpress-AR-V2516**
  Compact COM Express Type 6 module with New AMD Ryzen™ V2516 at 2.1/3.95GHz, hexa-core processor, Radeon™ Vega graphics with 6CU

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

Accessories

Heat Spreaders

- **HTS-cAR-B**
  Heatspreader for cExpress-AR with threaded standoffs for bottom mounting
- **HTS-cAR-BT**
  Heatspreader for cExpress-AR with through hole standoffs for top mounting

Passive Heatsinks

- **THS-cAR-B**
  Low profile heatsink for cExpress-AR with threaded standoffs for bottom mounting
- **THS-cAR-BT**
  Low profile heatsink for cExpress-AR with through hole standoffs for top mounting
- **THSH-cAR-B**
  High profile heatsink for cExpress-AR with threaded standoffs for bottom mounting

Active Heatsink

- **THSF-cAR-B**
  High profile heatsink with fan for cExpress-AR with threaded standoffs for bottom mounting

Starter Kit

- **COM Express Type 6 Starter Kit Plus**
  Starter kit for COM Express Type 6

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