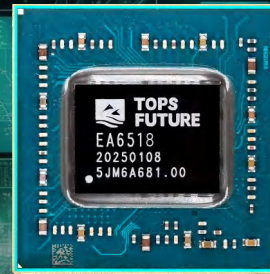


EA6518



The EA6518 is an industrial-grade high-performance SoC chip specifically designed for edge AI inference, providing cost-effective and highly flexible AI computing capabilities for various edge AI application scenarios across industries. The EA6518 integrates 8-core high-performance RISC-V CPU which up to 1.8GHz, supporting vector instructions and FPU; it features the latest generation of AI NPU for deep learning inference, up to 16TOPS (INT8, INT4)/ 8TFLOPS(FP16, FP8), also support transformer algorithms accelerator.

Key Features

CPU

- Oct-core 64-bit RISC-V CPU(RV64GCV), two clusters, up to 1.8GHz (similar to ARM cortex A73)
- Support RISC-V Vector for FP16/ FP32/ FP64
- FPU integrated
- 64KB L1 Instruction Cache and 64KB L1 data cache per core
- 1MB L2 data cache per cluster
- DVFS supported

NPU

- Upto 16TOPS(INT8, INT4)/8TFLOPS(FP16, FP8)
- Support Neural Network Engine
- Support Transformer Engine
- Support Parallel Processing Unit (PPU), 128bit Vector Process, Open CL 3.0

Display

- RGB TFT 24bit interface, upto 1920*1080@30fps
- BT1120 interface
- SPI/QSPI interface, upto 100Mhz
- Support 2 layer OSD

Crypto Acceleration Engine (CAE)

- Cryptography Accelerator On 1.2GHz
- IPsec/SSL/TLS/DTLS 5Gbps Using AES And SHA-1
- MACsec 5.9Gbps Using AES-GCM

Memory

2 DDR Memory Port

- LPDDR4/LPDDR4X interface
- 32-bit bus width each port, 64bit total
- up to 2133MHz
- Support one DDR Port mode

External memory

- xSPI Nor/Nand Flash, up to 4 or 8 wire
- eMMC
- SDHC

Multimedia

- Video Decoder: H.264/ H.265, 4K@120fps(1080p@480fps)
- Video Encoder: H.264, 1080p@120fps
- JPEG Decoder: 1920*1080@480fps, Upto 32768*32768 Resolution
- JPEG Encoder: 1920*1080@120fps, Upto 8192*8192 Resolution

Security

- Secure Isolation
- Secure Boot
- 8K Bits Secure OTP For Secure Key Storage
- 1K Bits PUF-Based True Random Static Entropy
- Support ECDSA, RSA, AES, SHA, MAC, KDF, DRBG, SM2, SM3, SM4
- DPA Resistant

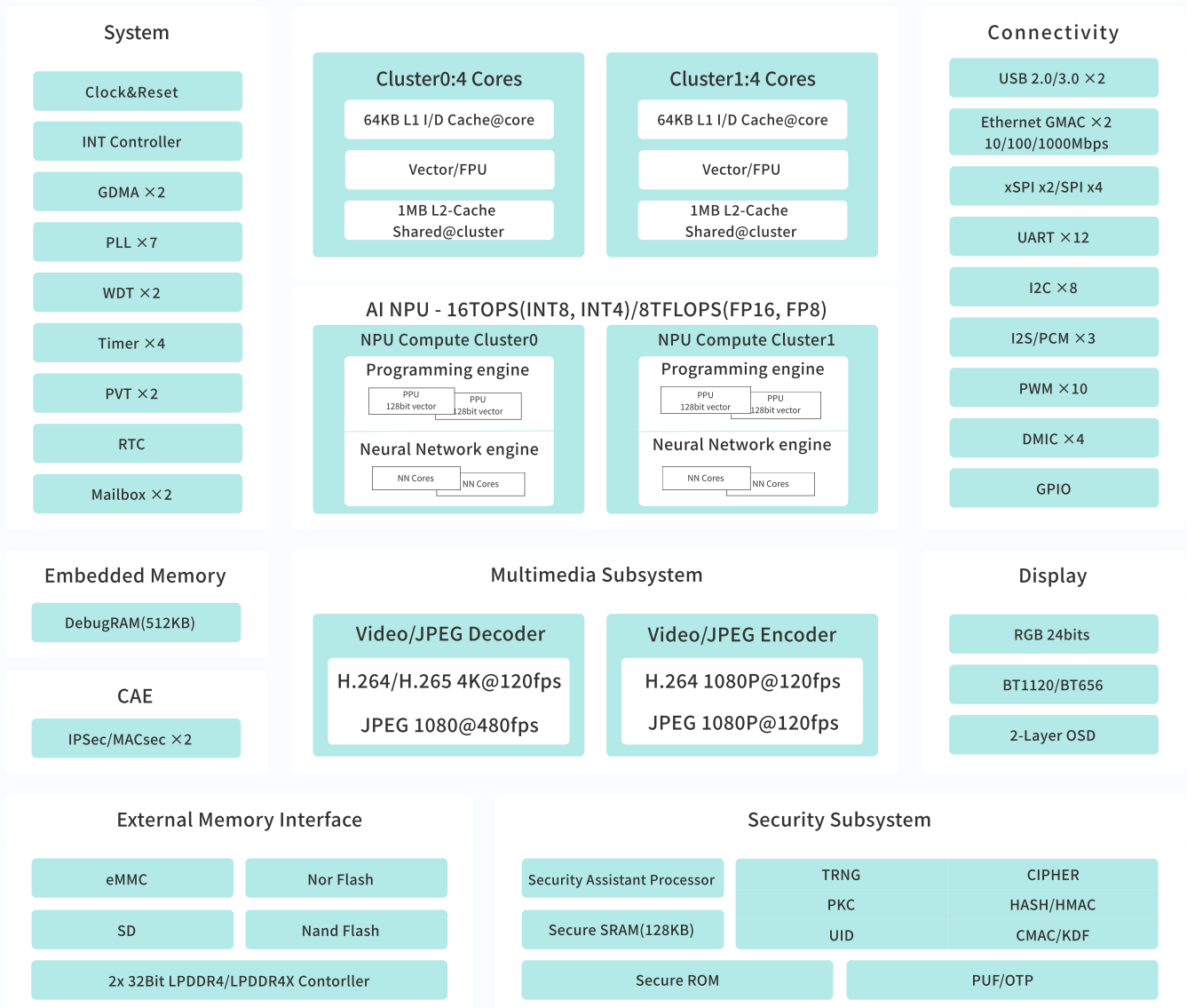
USB

- Two USB 2.0/3.0 Interface
- Compliant With USB 3.0 And XHCI 1.0 Specification

Physical

- Power Supply
 - Core: 0.8V
 - IO: 1.8V/ 3.3V
 - Analog 1.1V(LPDDR4)/ 0.6V(LPDDR4X)/ 1.8V(PVT)
- Temperature: -30°C ~ 85°C
- Typical Power Consumption: 12W
- Package: FCBGA, 961pin, 21mmx21mm

Block Diagram



Ethernet

- Two MAC 10/100/1000 Ethernet Controller With RGMII Interface
- Compliant With IEEE802.3 Standard

Other Interface

- Support six I2C interface
- Support twelve UART interfaces
- Support four SPI controller
- Two xSPI controller, Support 4/8 Wire
- Three I2S controller
- One SD/eMMC controller
- Eight on-chip PWMs with interrupt-based operation