

M76H leads the industry trend with its innovative Proton™ AI ISP technology, self-developed high computing power Neutron™ NPU, together with rich SoC resources, focuses on the integrated application of transportation and mooring, and provides a complete solution including chips, SDK, AI Toolchain and reference design.



Key Specification

Neutron™ v3.0 NPU

- Support BEV, Transformer
- Supports low bitrate and Mixed-precision
- High performance heterogeneous multi-core architecture
- Supports pipeline Level Optimization
- Perfect Toolchain, high-precision PTQ, rich operator support

Multi-Core Architecture


- Octa-core Arm® Cortex®-A55 up to 1.6GHz
- Dual-core 800MHz VQ7
- Rich CV operators

Strong Video Porcessing

- 4K120fps Video enoding
- Hardware desensitization
- multi-streaming performace

Proton™ v3.0 AI-ISP

- AI NR/HDR/EIS/Demosic
- AI depurple and defog
- RGB-IR AI fusion
- AI sharpen CCM



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Rich interfaces

- 4x4 Lane MIPI Rx
- MIPI CSI/DSI Tx
- 2-lane PCIe 2.0
- Gigabit Ethernet

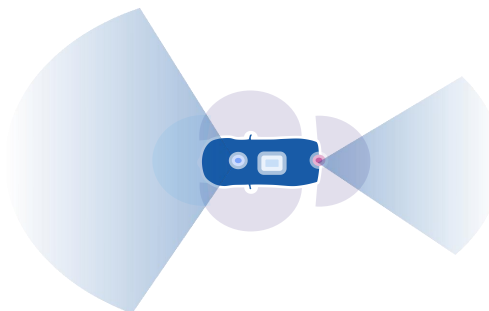
Super low power cost

- support passitive cooling

Solution

6V D&P Integrated ADCU

- Cost effective Highway NOA
- Urban ICA with Junction scenario enhanced
- High performance HPA
- High performance NPU tool chain
- Complete reference design.



Product Description

CPU:

- Octa-core Arm® Cortex®-A55 up to 1.6GHz
- 32KB I/D-Cache
- Advanced SIMD and floating-point extension(Arm® Neon™)

NPU:

- Supports mainstream deep learning frameworks
- Supports batch acceleration
- Supports INT4/8/16 mixed precision,
- Mature tool chain, high-precision PTQ, rich operator

DSP:

- 2 x Cadence® Tensilica® Vision Q7

ISP:

- Maximum performances up to 8192x4320@30fps 2DOL
- Multi-channel stitching
- RAW8/10/12/14 RAW Data and 8bit/10bit YUV420 support
- AI ISP
 - AI-HDR and multi-exposure AI-HDR
 - 2/3/4frameDOL HDR
 - AI-3DNR
 - AI Multi-spectral image fusion(IR and RGB image)
 - AI-DIS, AI-EIS
 - AI-Demosaic
 - AI-Sharpen
 - AI-Depurple
- HDR
 - 3A (AF, AWB, AE) and PDAF support
 - Image information statistics (AE, AWB,HIST,FIR and IIR AF)

- LDC and fisheye distortion support
- correction, defog, depurplel,
- Gamma compensation , mirror/flip,EIS,DRC and DRD

Video Encoding:

- H.264/H265 encoding:
 - 4K@120fps maximum encoding performance
 - Maximum resolution: 8192x8192
 - Streaming bitrate up to 20Mbps bitrate
- JPEG encoding:
 - Maximum performance: 3840x2160@200fps
 - Maximum resolution: 32768x32768

Video and image process:

- Video resize
- CV functions, including image rotation, stitching, crop and so on.

Interface

Video Interfaces

Video Input

- 4 x 4-lane (or 4x 3-trio) MIPI-CSI2 Rx with sixteen camera input. Up to 2.5Gbps/Lane(D-PHY) and 2.5Gbps/trio(C-PHY)

Video output

- 1 x 4-lane MIPI-CSI2 Tx/DSI, up to 2.5Gbps/Lane

Memory Interface:

DDR

- 64-bit LPDDR4/LPDDR4x
- Speed up to 4266Mbps
- Capability up to 32GB

eMMC

- eMMC v5.1
- Capability up to 2TB

SDcard

- SD3.0

SPI Flash

- 1-/2-/4-wire NOR & NAND Flash

Peripherals :

Ethernet

- 2x RGMII/RMII

PCIe

- 2x PCIe 2.0

Others

- PWM, I2C, SPI, UART, ADC
- 1x USB 3.0, 2x USB2.0

Security

- Secure boot
- Memory access protection
- Cryptographic acceleration - AES/DES/3DES/SHA2-224,256
- Public Key Accelerator - RSA /ECDSA
- Chinese national crypto algorithms: SM2/SM3/SM4

Physical

Operating temperature range:

- -40°C ~ 105°C (Ambient)

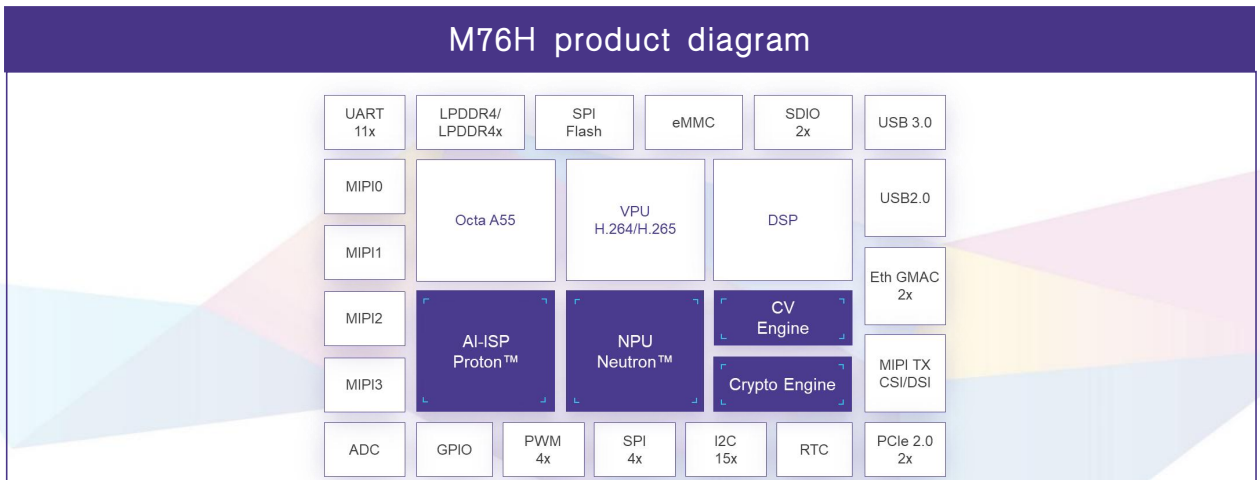
Package:

- 23x23 mm,0.7 mm pitch, FC-BGA

Qualification:

- AEC-Q100 Grade 2

M76H product diagram



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