



Product Brief

The newest member of the Myriad family of always-on imaging and vision processors, the Myriad 2 system-on-a-chip (SoC) is designed for high-performance, low-power computational imaging and visual awareness applications in power-constrained mobile, wearable, and embedded devices. Myriad 2 delivers industry-leading power efficiency in vision processing supported by robust software development tools. Myriad 2 is accelerating a new era of computational cameras in connected devices.

Combining Computational ISP with Visual Awareness

Myriad 2 incorporates a complete image and video signal processing pipeline together with programmable vision processing to support a complete camera-to-display experience. The adaptable computational imaging pipeline serves various camera configurations and supports a complete range of auto-functions. It can process still image and video at various configurations, including 13 Mpixel at 48 fps or 4K resolution at 60 fps. Additionally, Myriad 2 supports embedded processing for scene intelligence and visual awareness, enabling a wide range of applications from camera-based indoor navigation to 3D scanning.

Robust Programming Model

The Myriad Development Kit (MDK) includes a groundbreaking software development framework that enables developers to incorporate proprietary functions of their own and build arbitrary processing pipelines while taking advantage of the optimized software libraries provided. Also included are a rich set of vision, imaging, and linear algebra libraries, plus reference vision processing pipelines, all provided as source code. The MDK includes all the programming and debugging tools necessary to enable developers to innovate and differentiate.

Efficient Hardware Platform

The Myriad 2 reference board includes reference camera and MEMS sensors, and an integration kit for applications processors, enabling developers to efficiently prototype applications.

Target Applications

- Computational photography (rapid AutoFocus, HDR, extreme low light)
- 3D modeling and scanning
- Indoor navigation
- 360° panoramic video
- Visual analytics
- Immersive gaming, augmented reality
- Gesture recognition

Product Categories

- Smartphone/Tablet cameras
- Wearables, action cam, electronic eyewear
- Embedded
 - Home automation, industrial, robotics

Features and Benefits

- Ease of programming with Myriad Development Kit (MDK)
 - Eclipse-based graphical development
 - Rich set of tools, frameworks, and optimized libraries
 - Supports C, C++, OpenCL
 - Auto dataflow support for arbitrary application pipeline development
 - Posix RTOS
- Superior performance and power efficiency
 - Two trillion 16-bit operations per sec
 - Less than 500 mW
 - 12 specialized vector VLIW processors
 - Dedicated imaging/vision accelerators
- Low latency, hard real-time processing
 - 600 Mpixels/sec nominal throughput
- Intelligent memory fabric enables maximum processing with ultra-low power and minimum data movement
- Supports up to six 1080p60 HD cameras



Myriad 2 SoC Specifications

- Two trillion 16-bit operations per second of compute capacity within 500 mW of power envelope
- Heterogeneous, high throughput, multi-core architecture based on
 - 12 128-bit vector VLIW "SHAVE" processors optimized for vision processing workloads
 - Configurable hardware accelerators for image and vision processing
 - 2 x 32-bit RISC processors
 - Supports data and task parallelism
 - Programmable Interconnect
- Support for 16/32-bit floating point and 8/16/32-bit integer operations
- Homogeneous, centralized memory architecture; 2MB of on chip memory
- 400 GB/sec of sustained internal memory bandwidth
- Nominal 600 MHz operation at 0.9V; turbo mode also supported.
- Support for up to 8 Gbit, 2 x 32-bit LPDDR II/III DRAM, up to 1066 MHz operation
- 256 KB of L2 Cache, MUTEX support
- Rich set of interfaces:
 - 12 Lanes MIPI, 1.5 Gbps per lane configurable as CSI-2 or DSI
 - 3 x I2C, SPI for control and configuration
 - 3 x I2S for audio input
 - Banks of configurable GPIO, PWM
 - USB3 with integrated PHY
 - 2-Slot SDIO host interface
 - 1 x UART interface
 - 1 Gbit Ethernet
 - Parallel video input and output
- Fine grained power management, 16 power islands, low power states
- Available package configurations
 - 5mm x 5mm, 0.35mm pitch, 182 Ball WCLSP
 - 6.5mm x 6.5mm, 0.4mm pitch, 225 Ball BGA, 1Gb LPDDR II
- Advanced low-power TSMC 28nm HPM process node

