

MERGED CMOS IP CAMERA PLATFORM

3.2 Megapixel IP Camera Platform Offers Color Accuracy, Noise Management, and High Performance MPEG4 or H.264 Video Streaming in Low Power and Small Form Factor

The NETHRA IMAGING™ Merced platform is a production-ready IP camera unit designed to enable OEMs to develop fast time-to-market IP cameras for the surveillance market. With minor GUI customization and adjustments to fit OEM specific implementation needs, the camera design is ready to move into production.

The Merced platform is designed with Nethra's second generation image processor NI-9065 which is based on a highly scalable, real-time image processing pipeline. It is a total solution with video streaming and encoder functions implemented on separate boards.

The front-end Capture Board, implementing the NI-9065 and Micron MT9T031, is optimized for both box and dome camera designs. The system solution, covering capture and encoding, consumes less than 3 W - much less than a typical CCD sensor and ISP solution alone.

The platform is delivered with complete software package as well as support for customization of the GUI and API. Advanced features include motion detection, privacy masking, and OSD (on-screen display). Using the Merced Platform as the foundation, OEMs can develop advance surveillance cameras quickly and efficiently with relatively low development costs. Nethra will also be offering additional Capture Boards for WVGA sensors and adding features such as enhanced dynamic range in upcoming releases.

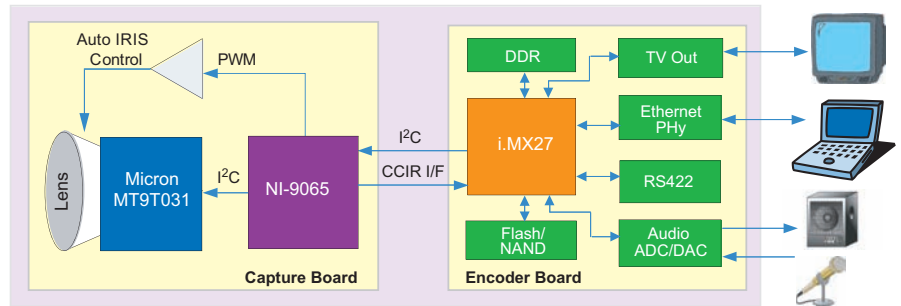


Figure 1 Merced IP Camera System Block Diagram

KEY FEATURES

- Production-ready IP camera design enabling fast time-to-market
- Two digital boards, dimensions optimized for box camera form factor
- Separate multi-source power supply board

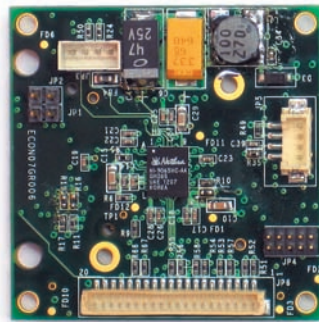


Figure 2 Capture Board Rear View with NI-9065

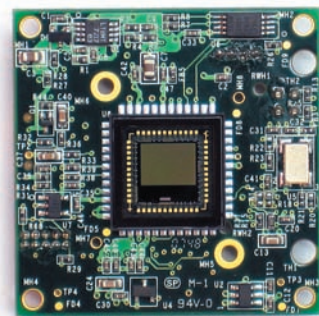


Figure 3 Capture Board Front View with Sensor

Capture Board

- 3.2 megapixel sensor with electronic PTZ
- Auto iris option
- Excellent low light performance at high frame rates
- Programmable threshold for switching between monochrome and color for enhanced low light
- Temperature compensated noise correction in CMOS *
- Ability to adjust frame rates and resolution from the sensor to encoder itself, as opposed to the traditional frame-rate control via frame-dropping. This enhances low light performance.

Encoder Board

- PoE to enable network switches
- Motion detection (MPEG4 and H.264 modes only)
- OSD (MPEG4 and H.264 modes only)
- Privacy Masking (MPEG4 and H.264 modes only)
- Electronic PTZ *
- Application software that includes a simple browser-based management utility supporting multicast and unicast.

EVALUATION PACKAGE

The Merced evaluation package includes:

- 38 mm x 38 mm Capture Board with Micron MT9T031
- 38 mm x 75 mm Encoder Board
- Separate PoE 12 V DC and 24 V AC Board
- Production grade Linux distribution and drivers
- BNC connector for quick video setup (NTSC or PAL)
- Setup documentation

* software upgrade is available in late Q2 2008.

DESIGN PACKAGE

- Hardware:
 - Board schematics and BOMs
 - Board job files
- Software (binary)
 - NI-9065 binary firmware for MT9T031
 - Linux source for the Encoder Board, based on i.MX27 distribution with optimization.
- User documentation

MPEG4 or H.264 is offered as an end-user option, enabling the deployment of Merced in streaming over 100 Mbps Ethernet.

Merced is available for shipping as of early Q2 2008. Merced enabled camera platforms are also available from ODM partners. Please contact your local Nethra Sales Representative for further information.

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FEATURES	DESCRIPTION
Imaging and Camera	
Sensor	Micron MT9T031 3.2 Megapixel, 1/2 inch sensor
Image Processor	NI-9065, temperature calibrated and compensated with fixed pattern and hot-pixel noise reduction technology, combined with AE and AWB optimization for enhanced low light performance and at full resolution.
Low Light	CMOS sensor, day/night mode, 0.5 lux minimum at 5 fps with full resolution.
Feasible Resolutions	Video: - 30 fps: 1024 x 768, 720 x 480, 640 x 480, 320 x 240 (full FOV) - 8 fps: 2048 x 1536, 1920 x 1080, 1600 x 1200, 1280 x 1024 (full to partial FOV, enabling ePTZ applications for wide angle surveillance and zoom to details.) MJPEG: - 30 fps: 640 x 480 - 6 fps: 2048 x 1536 Frame rate limitation includes i.MX27 CCIR interface limits.
Video Compression Performance	MPEG4: - at 30 fps is 720 x 480 maximum H.264: - at 24 fps is 640 x 480 maximum
Activity Detection	Admin selected activity detection zone and admin set sensitivity levels. Email delivery of JPEG images and phone delivery of SMS messages through SMTP.
Camera Features	Auto-iris control support with industry standard JEITA RC-5204 connector. PTZ control via RS 422 connector.
Optics	Support for C/CS-mount lens.
Networking	
PoE	IEEE 803.2af compatible Power-over-Ethernet, with less than 3 W power consumption.
Ethernet	10/100 Mbps Ethernet. RJ45 connector with link/activity LED's.
Networking	RTP/UDP, SMTP, NTP, DHCP, DNS, TCP/IP, HTTP, HTTPS
Security	SSH/SSL in camera for protection of video data. Password control for login, including Admin. Firewall is included. Camera design supports network-update of all firmware, OS and application software.
Mechanical	
Connectors	1 x BNC CVBS, 1 x RJ45 for 10/100, 12 V DC in, auto-iris (option), RS 422 for PTZ setup. Final enclosure selection drives final set of connectors.
Mounting	Depends on final enclosure selection.
Approximate Dimension	Depends on final enclosure selection. PCB footprints are 38 mm x 38 mm (front end) and 38 mm x 75 mm (encoder and connectors).
Power	
Power Input	12 V DC in or PoE. Less than 3.5 W max power consumption for the camera only, not including power consumption of auto-iris and PTZ systems.
Compliance/ Environmental	
Environmental Compliance	EU: RoHS compliant
Operating Temperature	0 ~ 50 degrees Celsius, ambient.
IP Software	
Camera Software	Camera software includes embedded web server, basic camera controls, and OSD management packaged with browser-based management UI. Customization is available – contact your Account Manager for details.
OEM Software	API for rapid integration into DVR systems is available.
Camera Viewing (default)	RTSP/RTP for video streaming to standard players or viewers on port 7070.
DHCP and Static IP	Camera can be configured with fixed IP address or with DHCP enabled.