NEON-1040/1020

Intel® Atom™ Quad-Core Processor E3845 1.91 GHz-based smart camera

Introduction

ADLINK's new generation x86 NEON-1040/1020 features 4MP 60fps/2MP 120fps global shutter sensor and the Intel® Atom™ quad core 1.91 GHz processor, featuring minimal footprint and rugged IP67-rated construction. The quad core CPU increases computing power and FPGA coprocessors and GPU deliver advanced image processing, both beyond the capabilities of conventional smart cameras. Rich software support and API compatibility enable easy migration from original x86 platforms, eliminating software and development language burdens across the platform, reducing time to market.

The NEON-1040/1020 is a powerful new generation x86 smart camera that features Intel® Atom™ quad core Processor E3845 1.91 GHz, global shutter image sensor (4 MP at 60 fps for the 1040, 2 MP at 120 fps for the 1020), and PWM lighting control support. The NEON-1040/1020 stands out with its minimal footprint, and superior computing power. Rugged construction with IP67-rated housing and M12 connectors enables the NEON- 1040 to withstand the harshest industrial environments.
High-end quad-core processor with FPGA coprocessors, GPU and up to 32GB storage for image processing, programs, and archiving, all provide advanced image processing ability that" s ideally suited to high-speed, high-resolution industrial imaging applications.

Optimal I/O including one additional slave GigE Vision camera connection, 4x isolated inputs, 4x isolated outputs, and VGA output maximize integration with external devices. Additionally, flexible software development support, including GenTL support for image acquisition and Open CV and Open CL programming, significantly benefits developers by easing migration from x86 platforms.

Features

- **Quad core Intel® Atom™ processor E3845 1.91GHz**
- **4M 60fps/2M 120fps monochrome global shutter CMOS sensor**
- **IP67-rated housing and M12 connectors thoroughly protect against dust & moisture**
- **Advanced image processing support**
- **Additional GigE Vision 1 slave camera support reduces TCO**
- **Built-in PWM lighting control**
- **4x digital inputs, 4x digital outputs, USB 2.0 and RS-232 ports**
- **Flexible software support with STEMMER Common Vision Blox, MVTec HALCON, COGNEX VisionPro, Teledyne Dalsa Sherlock, Adaptive Vision Studio, Euresys Open eVision, and many others**
- **GeniCam , GenTL, Open CV and Open CL compatible with image acquisition**
- **VGA output, max. 2560x1600 @60 Hz**

Applications

- **Industrial automation**
- **Robot guidance**
- **3D vision**
- **Medical imaging**
- **Machine Tooling**

Software Support

OS Information

- **Windows® 7, Embedded Standard 7**

Standard M4 mounting holes enable easy installation

Programmable LED indicator provides status information

M12 connectors allow secure, rugged connection

Specifications

Model Name	NEON-1020	NEON-1040
Processing & Memory		
Processor	Intel® Atom™ E3845 Processor, Quad Core @ 1.91 GHz	
Display	VGA output, max. 2048 x 1152 at 60 Hz	
RAM	4 GB DDR3L	
Storage	16 to 32 GB solid state drive	
Advanced Processing	ROI, LUT, Shading Correction	
Sensor		
Image Sensor	CMOSIS CMV2000	CMOSIS CMV4000
Resolution	2048 x 1088	2048 x 2048
Sensor Size	2/3"	1"
Format	Monochrome	
Pixel Size (μm)	5.5	
Frame Rate (fps)	120	60
Shutter	Global	
Trigger Mode	External trigger, software trigger, free run	
I/O Interface		
Trigger Input	1x Opto-isolated trigger input	
Digital Output	4x sink type output, max sink 100mA sink voltage max 30VDC	
Digital Input	4x TTL level input	
PWM Lighting Control – Drive Method	Constant current 500mA	
PWM Lighting Control – Applicable Light Units	24 VDC illuminators	
PWM Lighting Control – Dimming Resolution	1000:1	
Ethernet	1 x GbE	
Serial Communication	1 x RS-232 (TX and RX only)	
USB	1 x USB 2.0	
Mechanical		
Dimensions	68.5mm W x 110mm D x 52.7 mm H / 2.70" W x 4.33" D x 2.08" H (68.5mm x 110mm x 42.7mm reduced size option)	
Lens mount	C mount	
Connectors	1 x M12 8-pin (Female), 1xM12 17-pin (Male), 1x M12 12-pin (Male)	
Software Support		
Operation System	Windows 7, Windows Embedded Standard 7	
Environmental & Electrical		
Power Consumption	24 VDC +/-10%, 13W (Typical)	
Operating Temperature	Standard: 0°C to 50°C (32°F to 122°F) Extended temperature option: 0° to 60 °C (32° F to 140° F) (w/ industrial SSD)	0° to 50 °C (32° F to 122° F)
Vibration	Operating, 5 Grms, 5-500 Hz, 3 axes	
Certification	IP67, CE, FCC Class A	

Ordering Information

Model Name	Description
NEON-1040/M4G/SSD32G	Intel® Atom™ Quad-Core Processor E3845 1.91 GHz-based smart camera with 4MP, 60fps, global shutter sensor with 32G SSD
NEON-1040/M4G/SSD16G	Intel® Atom™ Quad-Core Processor E3845 1.91 GHz-based smart camera with 4MP, 60fps, global shutter sensor with 16G SSD
NEON-1020/M4G/SSD32G	Intel® Atom™ Quad-Core Processor E3845 1.91 GHz-based smart camera with 2MP, 120fps, global shutter sensor with 32G SSD
NEON-1020/M4G/SSD16G	Intel® Atom™ Quad-Core Processor E3845 1.91 GHz-based smart camera with 2MP, 120fps, global shutter sensor with 16G SSD

Optional Accessories

GigE cable 5m	5m Ethernet cable with shielded and AWG 26 stranded. M12 to RJ45 plug
Power & DI/O cable 3m	3m cable for NEON to connect power, DI/O and UART cable. M12 to free cable end.
VGA & USB cable 3m	3m cable for NEON to connect VGA and USB. M12 plug to VGA female and USB-type A female plug.
IP67 kits lens protector	Lens protector for NEON to achieved IP67 rated
DIN-1040 terminal board	Terminal board for DI/O, RS-232, GigE, USB and power input for NEON series.
16mm C-mount lens	16mm 4Mega pixels resolution C-mount lens for 1" sensor
LED lighting	15" high-density white LED arrays in ring shape.
NEON Starter Kit	ADLINK Smart Camera Starter Kit with NEON-1040/1020 and accessories package