iPORT NTx-NBT50 Embedded Video Interface

Transmit uncompressed images at 5 Gbps over standard Cat 5e Ethernet cabling

Overview

Pleora's **iPORT™ NTx-NBT50 Embedded Video Interface** hardware helps manufacturers shorten time-to-market, reduce risk, and lower costs by providing a straightforward way to integrate high-bandwidth GigE Vision®2.0 video connectivity over NBASE-T into imaging devices and systems.

The NTx-NBT Embedded Video Interface supports 5 Gbps transmission of uncompressed images over a standard Cat 5e Ethernet cable for distances up to 100 meters. The video interface complies with the GigE Vision 2.0 and GenICam™ standards, ensuring interoperability in multi-vendor networked or point-to-point digital video systems. The compact hardware solution is easily embedded into flat-panel X-ray detectors, imaging systems, and cameras. The product supports the IEEE 1588 Precision Time Protocol to synchronize image capture functions and other system elements, enabling the exact triggering of image acquisition.

Integrated image management allows users to track and retrieve images that are transmitted during a particular acquisition session.

Pleora's iPORT NTx-NBT50 Embedded Video Interface is supported by:

- A Development Kit to help speed time-to-market by enabling the rapid design of prototypes and proof-of-concept demonstrations, often without requiring hardware development;
- The GenICam Integration Package (consisting of the iPORT AutoGen XML generation tool and a firmware reference design) which makes it fast and easy to create a user-friendly GenICam interface (contact sales for pricing information on this integration package).

Features

- Supports 1/2.5/5 Gbps transmission rates for uncompressed images over standard Cat 5e Ethernet cabling for distances up to 100 meters
- Sensor interface uses serialized LVDS for low power and low pin count transfer of internal 48 bit pixel bus
- Small footprint embedded hardware easily integrated into existing and new imaging device designs
- GigE Vision 2.0 compliance ensures interoperability in multi-vendor digital video systems
- GenICam compliant interface provides easy access to programming features and simplifies integration of imaging devices into existing or new systems
- Supports IEEE 1588 Precision Time Protocol (PTP) to synchronize image capture and imaging system elements
- Integrated programmable logic controller (PLC) lets users control external machines and reacts to inputs — make functional changes, adjust timing, or add features without requiring new hardware
- Image management tags an image or group of images with metadata — provides context necessary to retrieve image data from the on-board frame buffer in event of power or network failure at the receiver
- 512 MB Image buffer
- Image store capability up to 4096 images deep
- Supports line scan and area scan modes
- Field upgradable firmware

GENICAM GIGE VISION MEMBER NBASE-T ALLIANCE™

Pleora Technologies

iPORT NTx-NBT50 Embedded Video Interface

Hardware

User Circuitry Interface (Including Internal Power Interface)	Two 40-pin Hirose Connectors FX6-40S-0.8SV2(93)
External Power Interface	2-pin 0.10″ header
NBASE-T Interface	RJ-45
NBASE-T PHY	Marvell 88X3310
Image Buffer	512MB
Persistent Memory	256 Mb Serial FLASH

Inputs/Outputs on User Circuitry Interface

Video Input	8 – Serialized LVDS lanes 1 – Clock 7 – Data (Multiplexed)
GPIO Inputs	4 x 3.3 V LVTTL / 2.5 V LVCMOS
GPIO Outputs	3 x 3.3 V LVTTL
Serial (Bulk)[1]	1 x 2.5 V LVCMOS 2 x 3.3 V LVTTL
Camera Control Outputs	4 x 3.3 V LVTTL

Frame Grabber

Number of Channels	1
Scan Modes	Area Scan (Progressive) and Line Scan
Pixel Depth (bits)	8, 10, 12, 14, 16, and 24 bits
Serial LVDS Clock	37.5 MHz to 100 MHz
Taps per Data Channel	Up to 4 for internal 48-bit pixel depth parallel video bus
Image Width (pixels)	• Min: 4[2] • Default: 640 • Max: 16 376 • Increment: 4[2]
Image Height (pixels)	• Min: 1 • Default: 480 • Max: 16 383 • Increment: 1
Windowing/Region of Interest	Yes
Tap Geometry	1X_1Y, 1X2_1Y, 1X4_1Y, 1X, 1X2, 1X4

Characteristics

Size (L x W x H)	72.5 mm x 56.0 mm x 17.6 mm (approximate, including RJ-45 Jack)
Weight	32.5 g
Operating temperature	Commercial[3]
Storage temperature	-40°C to +85°C
Power Supply	3.3 Volts
Power Consumption	Typical Power Consumption (30m CAT5e, 4.7Gbps): 6 W
MTBF at 40°C	1,059,389 hours
ECCN	5A991.b

Ordering Information

900-8003	**iPORT NTx-NBT50 OEM Board f**or 5 Gbps network transmission supporting 5GBASE-T
900-8006	**iPORT NTx-NBT50 Development Kit** for NTx- NBT50 development. Includes NTx-NBT50 OEM board mounted to a thermal baseplate, NBASE-T Ethernet desktop NIC, Cat 5e Ethernet cable, power supply, and eBUS SDK USB stick

1 UART supported on all Bulks. USRT, two-wire, and SPI supported on two bulks..

2 Image width increment of 8 when in Extended Chunk Mode.

3 Case and junction temperature limits vary by IC device. Please refer to User Guide for specific IC operating temperature specifications and thermal management information.

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