POLYHEX

Edge Computing Integrated Gateway Open Hardware Platform

Description：

NCF-N1043J-103B is an industrial edge computing integrated gateway open hardware platform, thus customers can develop custom APP based on the provided linux system, realize flexible deployment in the edge computing gateway, provide intelligent connection and data processing services nearby, and let different types of applications and data processed on the network Edge. It realizes real-time business, intelligence business, data aggregation and interoperability, security and privacy protection and other key intelligent services, effectively improving the efficiency of business intelligent decision-making.

Main Features:

• The NCF-N1043J-102B/NCF-N1043J-103B hardware platform can support multiple interfaces such as USB, RS485, RS232, WIFI, 4G, 5G and Ethernet, etc.
• It can support up to 64GB of industrial-grade storage capacity, realize fast reading and writing of data, support 4GB DDR4 memory, and improve operating efficiency
•Using reliability design to improve the reliability of the system. Supports fanless self-heating method to meet the requirements of reducing energy consumption
• The number of Ethernet connections and rich interface types can be expanded through the XFI interface
• Supports 802.3af/at POE power supply function
• Industrial standard temperature range and wide temperature range for options to meet the needs of different application scenarios

Specification:

Master Control Hardware	
CPU	LS1043A, 64bit ARM cortexA53, 4 cores, up to 1.6GHz
DDR	MICRON, 512MB~4GB optional, 32bit wide--8bit x 4, up to 1.6GT/s
ROM	MICRON eMMC, 8GB~64GB eMMC, HS200, 4bit wide
	ATMEL EEPROM, 16KB

RTC Function	Support
Temp. Monitor	LM75, near LS1043A
USB	3 x USB3.0
WAN	REALTEK GE PHY, 2 x RTL8211FS RGMII to 1000base-t
RS485	MAXLINEAR USB to UART, 1 x XR21B1424 USB-4UART chip, 4 x XR3078 RS485 chips
RS232	MAXLINEAR UART chip, 2 x SP3232 RS232 chip
Switch Quantity	4 channel switch quantity input
	4 channel switch quantity dry contact output
Reset	Supports 1 channel manual reset
	Supports 4 channel voltage monitor reset
	Supports hardware watchdog reset

Switch Hardware	
MAC	BCM53162
POE Supply Capacity (External)	MICROSEMI PD69104
	Supports IEEE802.3 af/AT POE power supply
Temp. Monitor	LM75, near BCM53162
LAN	8 x 10/100/1G BASE-TX/T RJ45
	Two of them support 60W 802.3AT power supply
	2 x 1G BASE-X SFP interfaces(one more 10G SFP optional)

Port Form		
Fixed Interfaces	WAN：2 x 10/100/1000BASE-TX/T RJ45	WAN：2 x 10/100/1000BASE-TX/T RJ45
	LAN：8 x 10/100/1000BASE-TX/T RJ45 + 2 x 1000BASE-X SFP	UART：4 x RS485 + 2 x RS232
	UART：4 x RS485 + 2 x RS232	Switch Quantity：4 x DI + 4 x DO
	Switch Quantity：4 x DI + 4 x DO	USB: 1 x TYPEA USB3.0
	USB: 1 x TYPEA USB3.0	
WAN	Use single port with yellow and green double LED shield without transformer RJ45	
LAN	Use 1 x 8 with yellow and green double LED shield without transformer RJ45	
	Use single port SFP cage	
UART	Use single row phoenix terminal, single port 3pin	
Switch Quantity	Use double row phoenix terminal, single port 2pin	
USB	Supports 500MA current limiting, use single port TYPEA USB3.0 blue core interface	
Optical Module	Supports mainstream 1GBASE-SX/LX optical module	
	Support GE photoelectric conversion module	
Power Supply	Single row 10A Phoenix terminal	
	2pin 12V	
	2pin 48V	

Product Form		
Dimensions	212.7 x 127 x 63mm(W x D x H)	
Cooling	Outdoor passive cooling	
Lights	RJ45 supports bi-colored light; Green 1000m; Yellow 10/100M	RJ45 supports bi-colored light; Green 1000m; Yellow 10/100M
	LINK(ever-bright), ACTIVE(flicker)	LINK(ever-bright), ACTIVE(flicker)
	SFP uses external green plug-in LED to indicate port status	Supports SYS/PWR green plug-in LED to indicate status
	Supports SYS/PWR green plug-in LED to indicate status	

Environment	
Operating Temperature	Two options:
	Industrial grade：-40~85℃
	Wide temperature range：-10~70℃
	1800 to 5000 meters above sea level: the temperature specification decreases by 1℃ for every 300m increase in altitude
	The equipment life cycle is calculated as 5 years

Storage Temp.	Temperature：-40~85℃
Storage RH	5%－95%(non-condensing)
Operating RH	5%－95%(non-condensing)
Operating Altitude	Maximum AC 5000 meters
Mechanical	Sinusoidal vibration operation：5-200Hz：10m/s2
Vibration & Shock	Shock operation：half sine, 11ms, 100m/s2
Transportation	Packing and transportation conform to ETSI 300019 Class 2.3：Public transportation
EMC	
CCC	Support
CE	Supports CISPR22 CLASSA
RE	Supports CISPR22 CLASSA
CS	Supports GE network interface：0.15~80MHz：3V, criterion A
RS	Supports CISPR22 CLASSA
SURGE	Supports GE network interface：Common-mode 8kV(1.2/50us), Differential-mode
	Supports RS485：Common-mode 8kV(1.2/50us), Differential-mode 4KV(1.2/50us)
EFT	Supports GE network interface：Common-mode 2kV(1.2/50us)
	RS485：Common-mode 2kV(1.2/50us)
ESD	Supports IEC61000-4-2, Direct 6KV/8KV, Air 8KV/15KV

ABOUT POLYHEX

As a board level and system level designer and manufacturer, Polyhex, with 9 years' experience, always delivers best-in-class embedded computing solutions based on both ARM and X86 architecture, including hardware customization and software debugging etc. Partnered with silicon venders like Intel, NXP, ST, Rockchip, Allwinners and so on, we have earned trust from clients worldwide in over 30 countries. Polyhex is also certified with ISO9001 and ISO13485 for the self-owned manufacture facility.

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Beyond the Embedded Deployment