



IoT Experts  
**SystemBase**  
Since 1987

**Industrial Connectivity Solution**



CATALOG

SystemBase

# Serial Connectivity to IoT

**Connectivity, Reliability** and **Assurance** are the key messages to ourselves on top of **Creativity** for the forthcoming era of ever evolving communication technology.



## Over 30 Years of Serial Connectivity Experience

Since 1987, SystemBase has been specializing in serial connectivity and IoT networking technology. We are a leading developer and manufacturer of our own products and dedicated solely to industrial connectivity solutions for over 30 years.



## OEM/ODM Service

SystemBase provides OEM/ODM services for hardware devices such as embedded CPU-based devices, inspection equipment and control systems. We have been developing customized products for domestic and foreign customers for many years. Our professional teams are keen in providing our clients with customized solutions to their newly developed or on-going projects.



## 5 Years Warranty & RMA Service

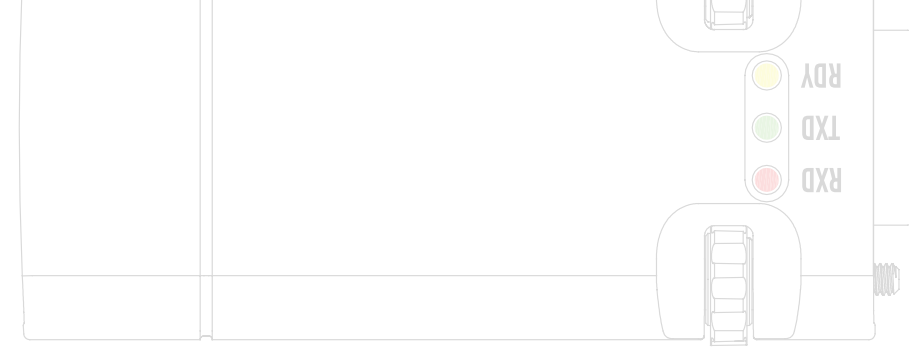
SystemBase provides exclusive free 5 years warranty. Our warranty covers product that show defects of material or manufacture that are objectively and demonstrably attributable to SystemBase from the date of purchase. Defective products under the warranty period will either be repaired or replaced through RMA process.



## Certified Quality Assurance



**RoHS**



Catalog

# Contents

**04 Converter**

**08 Embedded Module**

**10 Device Server**

**12 USB to Serial**

**13 Semiconductor**

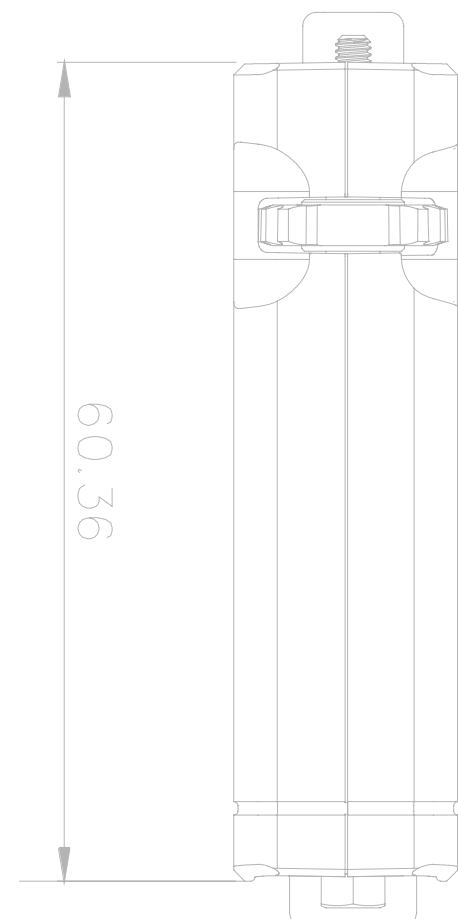
**16 Serial Card**

**18 LoryNet Products**

**22 Accessories**

**24 Product Map**

**26 Applications**



Serial Converter

RS232 to RS422/485



	Model		CS-428/9AT-mini2	CS-428/9AT-PR02	CS-428/9AT-IS02	CS-428i(DC)	
Serial	Description		RS232 to RS422/485 Converter				
			Mini	Standard	Digital-Isolated	Opto-Isolated	
	Speed		Max. 921.6Kbps				
	Distance (RS422/485)		Max. 1.2km				
	Connector	RS232	DB9				
		RS422/485	Terminal Block				
	Signal Line	RS232	TXD, RXD, RTS, DTR				
		RS422	TXD+, TXD-, RXD+, RXD-				
		RS485	TRXD+, TRXD-				
	Mode	RS422	Point to Point, Multi-drop				
		RS485	Echo, Non-Echo				
	Protection		±15kV			±30kV	±15kV
	Isolation		-			3kV	
Max. Connectable Equipment (RS422/485)		10				32	
HW	Power Supply Mode		Port Powered, External Power				External Power
	Dimension (W x L x H)		35.9 x 34.4 x 16.5mm	36.8 x 74.2 x 19.0mm	36.8 x 74.2 x 19.0mm	116.0 x 75.0 x 29.5mm	
			1.41 x 1.35 x 0.65in	1.45 x 2.92 x 0.75in	1.45 x 2.92 x 0.75in	4.57 x 2.95 x 1.16in	
	Weight		40g	50g	50g	540g	
			1.41oz	1.76oz	1.24oz	19.05oz	
	Operating Temperature		-40 ~ 85°C				0 ~ 50°C
			-40 ~ 185°F				0 ~ 122°F

LAN Converter

Serial to LAN



	Model	sLAN/all	CS-LAN
Network	Description	RS232/422/485 to LAN	RS232 to LAN
	Protocol	TCP, UDP, ICMP, DHCP, HTTP	
	Ethernet	10/100Mbps (Auto-MDIX)	
Serial	Interface	RS232/422/485	RS232
	Protocol	COM Port Redirector(Virtual COM Port), TCP Server/Client, UDP Server/Client	
	Speed	Max. 921.6Kbps	
	Signal	RS232	TXD, RXD, RTS, CTS, DTR, DSR, DCD, RI
		RS422	TXD+, TXD-, RXD+, RXD-
		RS485	TRXD+, TRXD-
	Data bit	5, 6, 7, 8	
	Stop bit	1, 2	
	Parity	None, Even, Odd	
SW	Flow Control	RTS/CTS, XON/XOFF	
	OS	RTOS	
	Management Tool	COM Port Redirector, TestView, Web	
	Configuration	Web, SGConfig	
HW	OS Support	Windows 7 or above Windows Server 2008 or above	
	LED	RDY, TXD, RXD	
	Power	5VDC	
	Dimension (W x L x H)	40.9 x 74.0 x 16.5mm	34.9 x 74.0 x 16.5mm
		1.61 x 2.91 x 0.65in	1.37 x 2.91 x 0.65in
	Weight	34.7g	32.1g
		1.22oz	1.13oz
	Operating Temperature	-40 ~ 85°C	
		-40 ~ 185°F	

Wireless Converter

Serial/USB to WiFi/Bluetooth



	Model		sWiFi/all	WCS-232	TALUS
Wireless	Description		RS232/422/485 to WiFi	RS232 to Bluetooth	Bluetooth USB Dongle
	Standard		IEEE 802.11 a/b/g/n	Bluetooth 2.0 + EDR	Bluetooth 4.0 + EDR
	Frequency (may vary by country)		2.4GHz / 5GHz Dual Band	2.4GHz	
	RF Power(EIRP) (may vary by country)		Max. 16dBm	Max. 18dBm	Max. 11dBm
	Receive Sensitivity (may vary by mode)		Max. -96dBM	Max. -88dBM	Max. -90dBM
	Modulation (may vary by mode)		OFDM	GFSK	
	Distance		Max. 100m		
	Speed		Max. 54Mbps	Max. 3Mbps	
Serial	Interface		RS232/422/485	RS232	-
	Protocol		COM Port Redirector(Virtual COM Port), TCP Server/Client, UDP	SPP	DUN, FAX, SPP, HID, FTP, OPP, A2DP, AVRCP, HSP, HFP, PAN, BPP
	Speed		Max. 921.6Kbps		-
	Signal	RS232	TXD, RXD, RTS, CTS, DTR, DSR, DCD	TXD, RXD, RTS, CTS, DTR, DSR	-
		RS422	TXD+, TXD-, RXD+, RXD-	-	
		RS485	TRXD+, TRXD-		
	Data bit		5, 6, 7, 8	8	-
	Stop bit		1,2		-
Parity		None, Even, Odd		-	
Flow Control		RTS/CTS		-	
USB	Interface		-		USB Type A
	Specification		-		USB 2.0, Full-Speed
SW	OS		RTOS	-	
	Management Tool/Configuration		Web, sWiFiConfig, COM Port Redirector	WCSConfig	BlueSoleil
	OS Support		Windows 7 or above Windows Server 2008 or above		Windows XP/Vista/7 or above (32/64bit) Linux / MAC OS X (driver required)
HW	LED		RDY, TXD, RXD	Mode, Connect, SRL(RX/TX)	RDY
	Power		5 ~ 12VDC		5VDC (USB VBUS)
	Dimension (W x L x H)		90.1 x 40.9 x 16.5mm	76.0 x 31.0 x 16.0mm	100.7 x 22.0 x 10.0mm
			3.55 x 1.61 x 0.65in	2.99 x 1.22 x 0.63in	3.97 x 0.87 x 0.4in
	Weight		32g	24g	22g
			1.13oz	0.85oz	0.78oz
	Operating Temperature		-40 ~ 85°C		
-40 ~ 185°F					

CAN Converter

Ethernet/Serial/USB to CAN

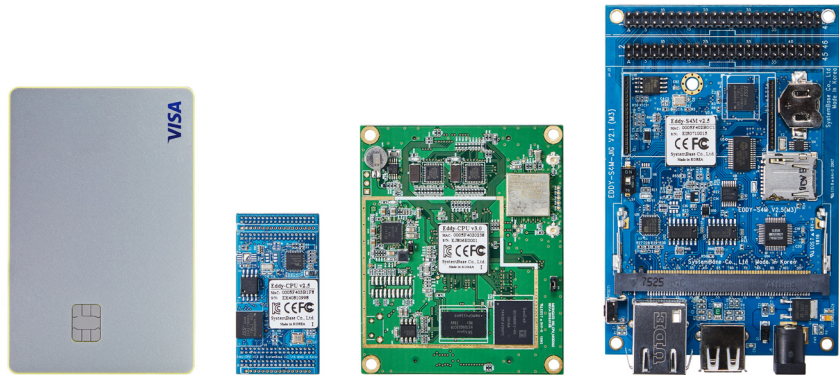


	Model	eCAN	sCAN	uCAN	uCAN Analyzer
CAN	Description	Ethernet to CAN	RS232 to CAN	USB to CAN	USB to CAN Analyzer
	CAN Standard	CAN 2.0 A/B			
	Distance	Max. 1km			
	Speed	Max. 1Mbps			
	Signal	CAN_H, CAN_L, VDD, GND			CAN_H, CAN_L
Network	Protocol	TCP, UDP, ICMP, DHCP, HTTP	-		
	Ethernet	10/100Mbps	-		
Serial	Interface	-	RS232	-	
	Speed	-	Max. 460.8Kbps	-	
	Signal	-	TXD, RXD, RTS, CTS, DTR, DSR	-	
	Data bit	-	8	-	
	Stop bit	-	1, 2	-	
	Parity	-	None, Even, Odd, Mark	-	
	Flow Control	-	RTS/CTS	-	
USB	Interface	-		USB Type A	
	Specification	-		USB 2.0, Full-Speed	
SW	OS	RTOS	-		
	Management Tool/ Configuration	Web, eCANConfig, eCANView	CANView		uCANView
	OS Support (Utility)	Windows 7 or above Windows Server 2008 or above			
	OS Support (Driver)	-		Windows 7 or above Windows Server 2008 or above	
HW	LED	RDY, DATA, LNK	RDY, DATA, ERR		TXD, RXD
	Power	5VDC		5VDC (USB VBUS)	5VDC
	Dimension (W x L x H)	40.9 x 74.0 x 16.5mm	34.9 x 67.3 x 16.5mm	34.9 x 64.3 x 16.5mm	40 x 84.4 x 22.6mm
		1.61 x 2.91 x 0.65in	1.37x 2.65 x 0.65in	1.37 x 2.53 x 0.65in	1.57 x 3.32 x 0.89in
	Weight	32.1g	23.5g	26.5g	50g
		1.13oz	0.83oz	0.93oz	1.76oz
	Operating Temperature	-40 ~ 85°C			
		-40 ~ 185°F			



# Embedded Module

Eddy is a small size embedded module, designed to be built-in and integrated to user's hardware providing Network/Internet data communications. Eddies are equipped with powerful specification for industrial use. It allows users to upload and execute customized user applications. The open design enables developers to program their own applications using an array of tools.



	Model	Eddy-CPU v2.5	Eddy-S4M v2.5	Eddy-CPU v3.0
HW	Processor	ARM926EJ-S (400MHz)		ARM Cortex-A8
	Memory	32MB SDRAM, 8MB Flash		512MB DDR3, 512MB NAND Flash
	External Interface	19 bits Address / 16 bits Data Bus	-	8 bits Address / 8 bits Data Bus
	GPIO	56	34	8
	Interface	ADC, SPI, TWI, USB 2.0, NAND Flash Attachable, Serial 4ports	ADC, SPI, TWI, USB 2.0, UART, MCI	UART, SPI, I2C, CAN, SDIO, PRU-ICSS
	Power	3.3VDC		
	Dimension (W x L x H)	25.0 x 48.5 x 8.5mm	59.75 x 61.80 x 7.3mm	62.2 x 59.2 x 9.0mm
		0.98 x 1.9 x 0.33in	2.35 x 2.43 x 0.29in	2.45 x 2.33 x 0.35in
	Weight	9g	14.2g	23.3g
		0.3oz	0.5oz	0.82oz
	Operating Temperature	-40 ~ 85°C		
		-40 ~ 185°F		
Network	Protocol	TCP, UDP, Telnet, ICMP, DHCP, TFTP, HTTP, SNMP, SSH, SSL		TCP, UDP, Telnet, ICMP, DHCP, TFTP, HTTP, SNMP, SSH, SSL, IPv4, IPv6
	Ethernet	10/100Mbps		10/100/1000Mbps
SW	OS	Embedded Linux		Yocto Linux
	Management Tool	SNMP, Web, PortView		
	Development Tool	LemonIDE™ & SDK		In Progress
	Firmware	JTAG, USB, Debug Port		

### Eddy-CPU v2.5



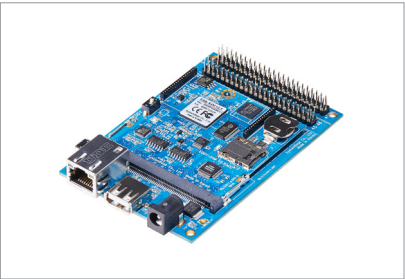
- ARM926EJ-S CPU, 8MB DATA Flash, 32/64MB SDRAM
- Pin Header Interface (144 Pins)
- 10/100 Ethernet PHY (Auto MDIX) and 4 UARTs
- Programmable GPIO (56 Pins)
- Supports TWI (I2C), SPI, MCI, 4Ch ADC
- 2 USB Hosts and 1 USB Device Port Provided
- Watchdog Timer
- Supports SNMP
- SDK and API for Developers Provided
- Operated by Embedded Linux

### Eddy-S4M v2.5



- ARM926EJ-S CPU, 8MB DATA Flash, 32MB SDRAM
- 3 USB 2.0 FS(12Mbps) Host
- 10/100Base-T with Auto MDI/MDIX
- MicroSD Support (Max. 16GB, SDHC Support)
- 2 RS232 & 2 RS422/RS485 (w/Auto Toggle)
- WDT & RTC with Battery(CR1220) Support
- Max. 34 Programmable GPIOs
- SDK and API for Developers Provided
- Operated by Embedded Linux

### Eddy-S4M v2.5 with JIG



- A carrier board that is equipped with Eddy-S4M CPU
- Helps programmers easily mount and test their applications
- Includes miniPCI connector(to be equipped with Eddy-S4M), Ethernet RJ45, USB Host, Power, and Reset Switch
- Provides all functions of Eddy-S4M in the form of a pin connector

### Eddy-CPU v3.0



- Cortex-A8 1Ghz CPU, DDR3 512MB
- Nand Flash 512MB
- 2X 10/100/1000Mbps Ethernet
- 4 UARTs, ICh I2C, ICh SPI, 2Ch USB
- RTC & Watchdog Timer
- Operated by Embedded Linux

### LemonIDE

LemonIDE is an Eclipse based development environment, providing GUI which enables easy development of applications and firmware running on Linux. All the operations related to GNU C/C++ compiler, source code editor, remote debugging and remote monitoring can be processed in this environment.

### Windows Utility Support

SystemBase provides powerful and free utilities to monitor and test your completed products over the network and the serial interface. Management utilities include COM Port Redirector, PortView and TestView.

# Device Server

Device servers remotely control and monitor serial devices using serial ports and Ethernet connection. Utilities are provided for the device server that supports maximum 921.6Kbps using TCP/IP to control or monitor devices remotely.

This device server allows two types of power supply to be flexible in responding to customers’ needs. It demonstrated excellence in reliability and stability operating at high humidity of 5 to 95% and temperature of -40 to 85°C(-40 to 185°F). Also the device server withstands the instability caused by ESD, EFT, and surge, providing more stable and reliable data communication environment. SG-2000 series support Modbus ASCII/ RTU/ TCP for easier control and monitor for industrial use.





	Model	SG-3011		SG-1160/ALL
		DCL	PCL	
Serial	Port	1	1	16
	Connector	DB9	Pitch 2.54mm Pin Header	RJ45
	Interface	RS232	RS232/422/485 (Echo, Non-Echo)	
	Protocol	COM Port Redirector(Virtual COM Port), TCP Server/Cilent, UDP Server/Cilent	COM Port Redirector(Virtual COM Port), TCP Server/Cilent, UDP Server/Cilent, TTL	COM Port Redirector(Virtual COM Port), TCP Server/Cilent, UDP Server/Cilent, TCP Broadcast/Multiplex, MODBUS ASCII/RTU
	Speed	Max. 921.6Kbps		
Ethernet	Ethernet	10/100Mbps (Auto-MDIX)		
	Protocol	TCP, UDP, ICMP, DHCP, HTTP		TCP, UDP, Telnet, ICMP, DHCP, TFTP, HTTP, SNMP, SSH, FTP, MODBUS TCP
SW	OS	RTOS		Embedded Linux
	Management Tool	COM Port Redirector, TestView, SGConfig, Web		COM Port Redirector, PortView, TestView, SGConfig, Web, SNMP
	Configuration	Web, SGConfig		Web, SSH, Telnet, SGConfig
	Security	-		SSH
	OS Support	Windows 7 or above Windows Server 2008 or above		
HW	LED	RDY, SRL	RDY, SRL1~3	TX, RX, PWR, WAN, LAN, RDY, LCD
	Power	5VDC		100 ~ 220AVC
	Dimension (W x L x H)	46.0 x 77.5 x 25.0mm	46.0 x 68.0 x 18.0mm	430.0 x 180.8 x 44.0mm
		1.81 x 3.05 x 0.98in	1.81 x 2.68 x 0.71in	16.5 x 7.12 x 1.73in
	Weight	32.1g	21g	2,470g
		1.13oz	0.74oz	87.13oz
	Operating Temperature	0 ~ 70°C		0 ~ 50°C
		32 ~ 158°F		32 ~ 122°F



	Model	SG-2011		SG-2021		SG-2041		SG-2081		SG-2161
		DIL	RIL	DIL	RIL	DIL	RIL	DIL	RIL	RIL
Serial	Port	1	1	2	2	4	4	8	8	16
	Connector	DB9	RJ45	DB9	RJ45	DB9	RJ45	DB9	RJ45	RJ45
	Interface	RS232/422/485 (Echo, Non-Echo)								
	Protocol	COM Port Redirector(Virtual COM Port), TCP Server/Cilent, UDP Server/Cilent, TCP Broadcast/Multiplex, MODBUS ASCII/RTU								
	Speed	Max. 921.6Kbps								
Ethernet	Ethernet	10/100Mbps (Auto-MDIX)								
	Protocol	TCP, UDP, Telnet, ICMP, DHCP, TFTP, HTTP, SNMP, SSH, FTP, MODBUS TCP								
SW	OS	Embedded Linux								
	Management Tool	COM Port Redirector, PortView, TestView, SGConfig, Web, SNMP								
	Configuration	Web, SSH, Telnet, SGConfig								
	Security	SSH								
	OS Support	Windows 7 or above Windows Server 2008 or above								
HW	LED	RDY, SRL(TXD/RXD)				RDY, SRL(TXD/RXD), WAN, LAN				
	Power	12VDC								
	Dimension (W x L x H)	75.8 x 83.6 x 28.4mm		101.7 x 83.6 x 26.8 mm		237.0 x 143.6 x 48.7mm				
		2.99 x 3.3 x 1.12in		4 x 3.3 x 1.06in		9.33 x 5.65 x 1.92in				
	Weight	163.8g	166.6g	199.4g	191.1g	963.8g	955.4g	1,029.6g	966.8g	1,048.9g
		5.78oz	5.88oz	7.03oz	6.74oz	33.99oz	33.7oz	36.32oz	34.1oz	36.99oz
	Operating Temperature	-40 ~ 85°C								
		-40 ~ 185°F								

# USB to Serial

Multi-x/USB series convert serial data communication signals through USB Bus supporting maximum speed of 921.6Kbps.



Latching USB Cable

Play Video



	Model	Multi-1/USB	Multi-2/USB	Multi-4/USB	Multi-1/ microUSB	Multi-1/ USB-C	Multi-4U	Multi-8U	
USB	Interface	USB Type A			USB micro-B	USB Type C	USB Type A		
	Specification	USB 2.0, Full-Speed	USB 2.0, High-Speed		USB 2.0, Full-Speed		USB 2.0, High-Speed		
Serial	Port	1	2	4	1	1	4	8	
	Interface	RS232, RS422/485			RS232		RS232, RS422/485		
	Signal Line	RS232	TXD, RXD, RTS, CTS, DTR, DSR, DCD, RI						
		RS422	TXD+, TXD-, RXD+, RXD-			-	-	TXD+, TXD-, RXD+, RXD-	
		RS485	TRXD+, TRXD-		TRXD+, TRXD-				
	Protection	±15kV							
	Flow Control	RTS/CTS, XON/XOFF							
	AutoToggling	Supported							
HW	Dimension (W x L x H)	49.0 x 39.0 x 16.3mm	94.0 x 39.0 x 16.3mm	184.1 x 39.0 x 16.3mm	49.0 x 39.0 x 16.3mm		135.0 x 84.0 x 32.9mm	210 x 84.0 x 32.9mm	
		1.93 x 1.54 x 0.65in	3.7 x 1.54 x 0.65in	7.25 x 1.54 x 0.65in	1.93 x 1.54 x 0.65in		5.32 x 3.3 x 1.3in	8.27 x 3.31 x 1.3in	
	Weight	90g	110g	160g	70g		220g	350g	
		3.17oz	3.88oz	5.64oz	2.47oz		7.76oz	12.35oz	
	Cable	600mm					1,200mm		
		23.62in					47.24in		
	Operating Temperature	0 ~ 50°C							
		32 ~ 122°F							
SW	Utility	TestView							
	OS Support	Windows 7 or above Windows Server 2008 or above Linux							

# Semiconductor

SystemBase manufactures and implements essential controller chips to its own products. The products by SystemBase are equipped with our own designed UART, PCI and PCI express controllers.

**World's Largest FIFO Memory**

By adopting 256-byte FIFO memory per I/O channel, it prevents overrun errors inside the chip and reduces the CPU load of the equipment.

**Auto Flow Control**

When flooding data exceeds the limit of the received buffer on the UART chip, the chip automatically sends signals or text messages to control the flow of the data to prevent data loss.

**Auto Toggling**

When connecting multiple equipment, the BUS from I/O connections are automatically switched ON/OFF, preventing signal crashes and reducing CPU load.

Sort	Model	Type				Package						
		FIFO	Auto Toggle	Serial	Parallel	QFN	LQFP	TQFP	TQFP	PLCC	TQFP	TQFP
				Port	Port	68	64	80	128	68	144	176
UART	SB16C554A	16	x	4	-	●	●	●	-	●	-	-
	SB16C1054	256	○	4	-	-	-	●	-	-	-	-
	SB16C1058	256	○	8	-	-	-	-	●	-	-	-
PCI UART	SB16C1052PCI	256	○	2	-	-	-	-	●	-	-	-
	SB16C1053APCI	256	○	2	1	-	-	-	●	-	-	-
	SB16C1054PCI	256	○	4	-	-	-	-	-	-	●	-
	SB16C1058PCI	256	○	8	-	-	-	-	-	-	-	●
PCI	SB4002A	-	-	-	-	-	-	-	-	-	-	●

# Semiconductor

UART

SB16C554A



- Quad UART with 16 Byte TX/RX FIFOs
- 16 Byte Tx/Rx FIFO
  - Maximum Transfer Rate: 5.3Mbps
  - HW Flow Control (Auto-RTS and Auto-CTS)
  - Pin-to-pin compatible with TI TL16C554A

Part Number	SB16C554A-TQ	SB16C554A-LQ	SB16C554A-PL	SB16C554A-FN
Package	80-pin TQFP	64-pin LQFP	68-pin PLCC	68-pin QFN
Operating Temperature	-20 ~ 85°C (-4 ~ 185°F)			

SB16C1054



- Quad UART with 256 Byte TX/RX FIFOs
- Four SB16C1050 UART Core with 256 Byte Tx/Rx FIFO
  - Provides Auto Toggling Function for RS422 and RS485 Bus Auto Control
  - Maximum Transfer Rate: 5.3Mbps
  - Supports Global Interrupt and able to Process Interrupt Vector
  - HW, SW Flow Control (Auto-RTS, Auto-CTS and Xon/Xoff)
  - Pin-to-pin compatible with TI TL16C554A

Part Number	SB16C1054-TQ
Package	80-pin TQFP
Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)

SB16C1058



- Octal UART with 256 Byte TX/RX FIFOs
- Eight SB16C1050 UART Core with 256 Byte Tx/Rx FIFO
  - Provides Auto Toggling Function for RS422 and RS485 Bus Auto Control
  - Maximum Transfer Rate: 5.3Mbps
  - Supports Global Interrupt and able to Process Interrupt Vectors
  - HW, SW Flow Control (Auto-RTS, Auto-CTS and Xon/Xoff)
  - Expandable up to 32 ports without any Glue Logics in the MIO Bus

Part Number	SB16C1058-TQ
Package	128-pin TQFP (20X20)
Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)

PCI

SB4002A



- PCI to Local Bus Bridge Controller
- Connects Local Legacy Bus and PCI Bus
  - Supports 33/66MHz PCI 32 bit Bus
  - Supports ISA like Local Legacy Bus (Maximum Transaction Speed 66MHz)
  - Supports Maximum 264MB PCI Burst Transfer
  - Supports CompactPCI, and CompactPCI Hot Swap

Part Number	SB4002A-TQ
Package	176-pin TQFP
Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)

PCI UART

SB16C1053APCI



- PCI to Dual UART and Single-Parallel with MIO Bus Bridge Controller
- Built-In two improved UART with 256 Byte FIFO and 9 bit Communication
  - Maximum Serial Speed: 921.6kbps
  - Provides Auto Toggling Function for RS422 and RS485 Bus Auto Control
  - One IEEE 1284 Compliant Parallel Port
  - SPP/Nibble/Byte/EPP/ECP modes in Parallel Port
  - 3.3V Operation4A

Part Number	SB16C1053APCI-TQ
Package	128-pin TQFP
Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)

SB16C1052PCI



- PCI to Dual UART with 256 Byte FIFO Bridge Controller
- Two SB16C1050 UART Core with 256 Byte Tx/Rx FIFO
  - PCI Local Bus Specification 2.3 Compliant
  - Supports 33/66MHz PCI 32 bit Bus
  - Provides Auto Toggling Function for RS422 and RS485 Bus Auto Control
  - HW, SW Flow Control (Auto-RTS, Auto-CTS and Xon/Xoff)

Part Number	SB16C1052PCI-TQ
Package	128-pin TQFP
Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)

SB16C1054PCI



- PCI to Quad UART with 256 Byte FIFO Bridge Controller
- Four SB16C1050 UART Core with 256 Byte Tx/Rx FIFO
  - PCI Local Bus Specification 2.3 Compliant
  - Supports 33/66MHz PCI 32 bit Bus
  - Zero-Wait PCI Conversion and 24ns UART Response Time for IOR and IOW
  - Provides Auto Toggling Function for RS422 and RS485 Bus Auto Control

Part Number	SB16C1054PCI-TQ
Package	144-pin TQFP
Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)

SB16C1058PCI



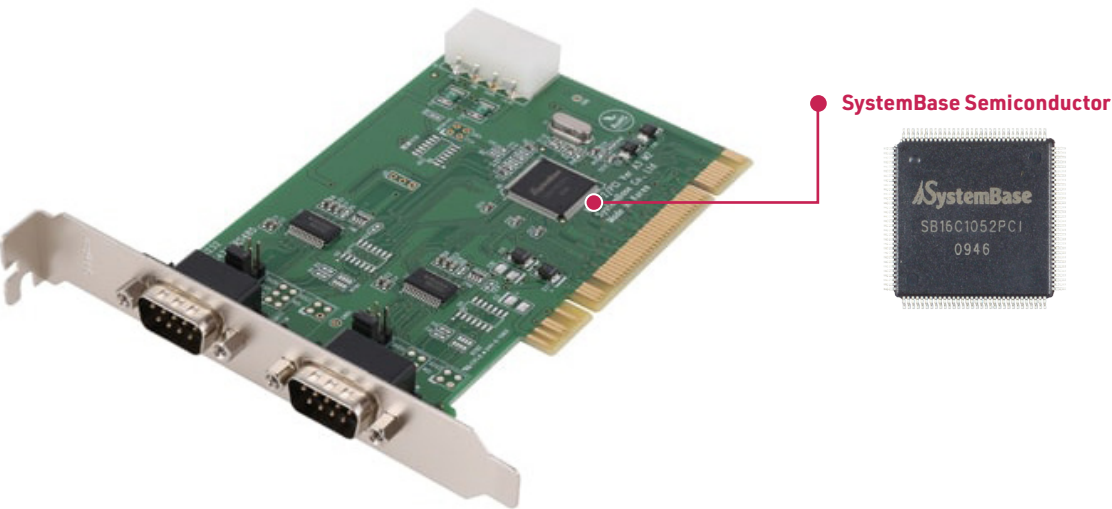
- PCI to Octal UART with 256 Byte FIFO Bridge Controller
- Eight SB16C1050 UART Core with 256 Byte Tx/Rx FIFO
  - PCI Local Bus Specification 2.3 Compliant
  - Supports 33/66MHz PCI 32 bit Bus
  - Zero-Wait PCI Conversion and 24ns UART Response Time for IOR and IOW
  - Provides Auto Toggling Function for RS422 and RS485 Bus Auto Control

Part Number	SB16C1058PCI-TQ
Package	176-pin TQFP
Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)



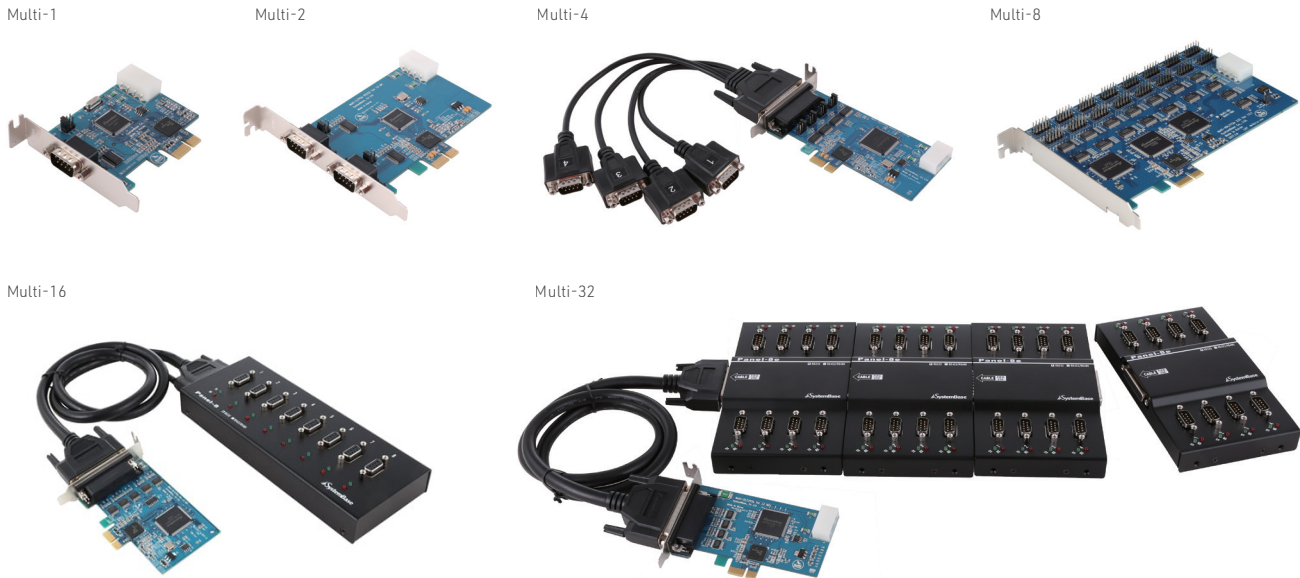
PCI Serial Card

Usually PC has one or two serial ports, thus need for more ports arises when connecting a number of devices to the PC. Adding more PCs may solve the problem, however, this is not a cost efficient way to solve it. PC in general consist of an optional slots for expansion needs. There are many types of slots such as PCI, PCIe bus and more. A serial card contains multiple serial ports on one board, enabling installation on expansion slots in a PC.



	Model	Multi-1	Multi-2		Multi-4		Multi-8			Multi-16	Multi-32
Serial	Port	1	2		4		8			16	32
	Board Connector	Standard (DB9)	Standard (DB9)	Split Cable Standard (DB9)	Extension Cable with Panel	Split Cable Standard (DB9)	Pin Header	Extension Cable with Panel	Split Cable Standard (DB9)	Pin Header	Extension Cable with Expansion Panels
	Interface	RS232, RS422/485									
	Speed	Max. 921.6Kbps									
	Protection	±15kV									
	Flow Control	RTS/CTS, XON/XOFF									
	Auto Toggling	Supported									
SW	OS	Windows 7 or above Windows Server 2008 or above Linux									
	Utility	TestView									
HW	Controller	SB16C1052PCI			SB16C1054PCI		SB16C1058PCI			SB4002A, SB16C1058	
	Cable	-	-	DB25 to DB9 Cable	DB44 to Panel Cable	DB44 to DB9 Cable	-	DB44 to Panel Cable	DB62 to DB9 Cable	-	DB44 to Panel Cable
	Operating Temperature	0 ~ 50°C									
		32 ~ 122°F									

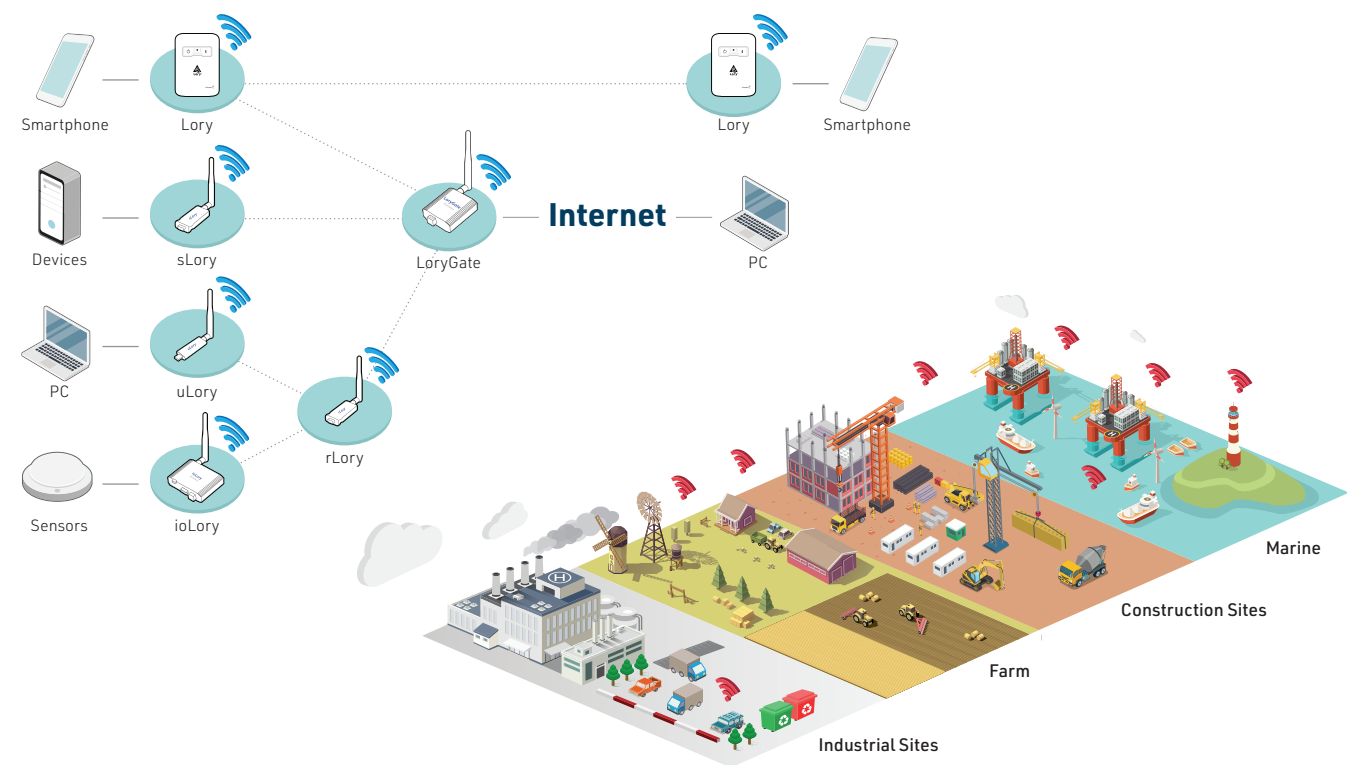
PCI Express Serial Card



	Model	Multi-1	Multi-2		Multi-4		Multi-8			Multi-16	Multi-32
Serial	Port	1	2		4		8			16	32
	Board Connector	Standard (DB9)	Standard (DB9)	Split Cable Standard (DB9)	Extension Cable with Panel	Split Cable Standard (DB9)	Pin Header	Extension Cable with Panel	Split Cable Standard (DB9)	Pin Header	Extension Cable with Expansion Panels
	Interface	RS232, RS422/485									
	Speed	Max. 921.6Kbps									
	Protection	±15kV									
	Flow Control	RTS/CTS, XON/XOFF									
	Auto Toggling	Supported									
SW	OS	Windows 7 or above Windows Server 2008 or above Linux									
	Utility	TestView									
HW	Controller	SB16C1052PCI			SB16C1054PCI		SB16C1058PCI			SB4002A, SB16C1058	
	Cable	-	-	DB25 to DB9 Cable	DB44 to Panel Cable	DB44 to DB9 Cable	-	DB44 to Panel Cable	DB62 or VHDCI-68 to DB9 Cable	-	DB44 to Panel Cable
	Operating Temperature	0 ~ 50°C									
		32 ~ 122°F									

# LoRa

LoRa is a wireless communication technology for sensor networks, a next-generation LPWA (Low Power Wide Area) communication technology that can transfer a small amount of data over long range.



# LoryNet

SystemBase's own LoRa platform, LoryNet is a network protocol based on LoRa technology, enabling communication anywhere in the world.



Communication Node  
sLory

- Serial to LoRa Converter**
- Provides RS232/422/485 serial communication standards (1 port)
  - Supports maximum serial communication speed of 921.6Kbps
  - Supports industrial operating temperature range of -40 ~ 85°C (-40 ~ 185°F)
  - Built-in ±15 kV IEC ESD Protection
  - Supports 917 ~ 923MHz ISM band (varies by country)
  - Provides test and configuration utility, LoRaConfig



Communication Node  
uLory

- USB to LoRa Converter**
- Supports USB 2.0 communication standards
  - Supports industrial operating temperature range of -40 ~ 85°C (-40 ~ 185°F)
  - Supports 917 ~ 923MHz ISM band (varies by country)
  - Provides test and configuration utility, LoRaConfig



Repeater  
rLory

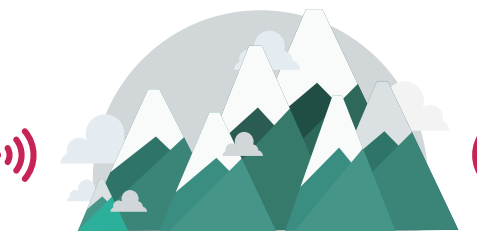
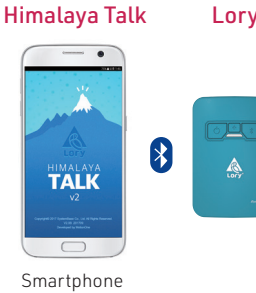
- LoRa to LoRa Repeater**
- Builds an independent network by linking with LoryNet products
  - Provides serial console (1 port)
  - Supports industrial operating temperature range of -40 ~ 85°C (-40 ~ 185°F)
  - Provides test and configuration utility, LoRaConfig

## Himalaya Talk



Communication Node  
Lory2

- Bluetooth to LoRa Converter**
- A wireless transceiver of low power, long distance
  - Able to communicate within about 15km distance (Line-of-Sight) via HimalayaTalk2
  - Continuous usage up to 72 hours
  - Support voice communication with STT and TTS
  - Supports 917~923MHz ISM band (varies by country)
  - High-capacity portable power pack
  - Provides solar battery charging
  - Provides waterproof/dustproof function (IP66)



Transfers Voice, Text, and GPS data between smartphones without base stations through Lory and HimalayaTalk App



LoryNet



Module  
LoryPlug / Serial

- LoRa to Serial Module**
- UART interface
  - Supports 917 ~ 923MHz ISM band (varies by country)
  - Supports maximum output of RF 25mW
  - ARM Cortex-M3 MCU
  - AT Command Configuration Available



Gateway  
LoryGate

- LoRa to Ethernet Device Server**
- Provides RS232 serial communication standards (1 port)
  - Supports serial maximum communication speed of 921.6Kbps
  - 10/100Mbps Ethernet Port (1 port)
  - Supports industrial operating temperature range of -40 ~ 85°C (-40 ~ 185°F)
  - Provides test and configuration utility LoryGate Config, LoRyGateView



Sensor Node  
ioLory

- LoRa High Performance Sensor Node**
- Provides digital input/output, analog input, relay output and RTD
  - Provides RS232/485 serial communication
  - Supports industrial operating temperature range of -40 ~ 85°C (-40 ~ 185°F)



	Model	sLory	uLory	rLory	LoryGate	ioLory		
Wireless	Description	Serial to LoRa	USB to LoRa	Repeater/Relay	LoRa to Ethernet	Sensor Node		
	Standard		LoRa					
	Frequency (May vary by country)	EU	863 ~ 870MHz					
		USA	902 ~ 928MHz					
		Japan	920 ~ 928MHz					
	Wireless Output		Max. 25mW					
Security		AES 128						
Serial	Interface		RS232/422/485	-	RS232 Console	RS232, RS485, DI, DO, AI, Relay, RTD		
	Speed		Max. 921.6Kbps	-	Max. 9.6Kbps	Max. 115.2Kbps		
	Signal	RS232	TXD, RXD, RTS, CTS, DTR, DSR	-	TXD, RXD	TXD, RXD, RTS, CTS, DTR, DSR, DCD	TXD, RXD	
		RS422	TXD+, TXD-, RXD+, RXD-	-				
		RS485	TRXD+, TRXD-	-				TRXD+, TRXD-
	Data bit		8	-	8			
	Stop bit		1	-	1			
	Parity		None, Even, Odd	-	None			None, Even, Odd
	Flow Control		RTS/CTS	-	None			RTS/CTS
USB	Interface		-	USB 2.0 Full-Speed	-			
Network	Protocol		-			TCP, UDP, Telnet, ICMP, DHCP, TFTP, HTTP, SNMP, SSH, SSL	-	
	Ethernet		-			10/100Mbps (RJ45)	-	
SW	OS		-			Embedded Linux	-	
	Management Tool/ Configuration		AT Command, LoRaConfig			LoryGateView, LoryGateConfig Web, SSH, Telnet	AT Command, LoRaConfig	
	OS Support (Utility)		Windows 7 or above			Windows 7 or above, Windows Server 2008 or above	Windows 7 or above	
	Security		-			SSH	-	
HW	LED		RDY, SRL, LNK	RDY, TXD, RXD	RDY, SRL, LNK	RDY, TXD, RXD	RDY, RS232, RS485, DI, DO, Relay, RTD, LoRa	
	Power		5VDC	5VDC (USB VBUS)	5VDC	12VDC (Screw Type), Terminal Block (VCC/GND/FGND)	12 ~ 48VDC	
	Dimension (W x L x H)	34.9 x 90.15 x 16.5mm		25.1 x 89.0 x 11.5mm	34.9 x 90.15 x 16.5mm	75.8 x 83.6 x 28.4mm	101.8 x 82.6 x 26.7mm	
		1.37 x 3.55 x 0.65in		0.99 x 3.5 x 0.45in	1.37 x 3.55 x 0.65in	2.98 x 3.29 x 1.19in	4.01 x 3.25 x 1.05in	
	Weight	40.5g		19g	40.5g	205.5g	218.7g	
		1.43oz		0.67oz	1.43oz	7.25oz	7.71oz	
	Operating Temperature		-40 ~ 85°C					
		-40 ~ 185°F						

# USB Hub

Our industrial USB Hubs supports operating temperature of -40 to 85°C(-40 to 185°F) and equipped with ±8kV ESD level 4 protection circuit to withstand the extreme environment.



	Model	uGate-400H	uGate-700H	uGate-401F	uGate-701F
USB	Isolation	-		±5kV Digital Isolation	
	Interface	USB Type A(Downstream) / USB Type B(Upstream)			
	Specification	USB 2.0, High-Speed		USB 2.0, Full-Speed	
	Upstream Port	1			
	Downstream Port	4	7	4	7
	Protection	4kV (Contact) / 8kV (Air)			
HW	Power (External)	12 ~ 48VDC			
	Dimension (W x L x H)	101.8 x 68.0 x 26.7mm	237.0 x 98.0 x 48.6mm	101.8 x 91.0 x 26.7mm	237.0 x 118.0 x 48.6mm
		4.1 x 2.68 x 1.05in	9.33 x 3.86 x 1.91in	4.01 x 3.58 x 1.05in	9.33 x 4.65 x 1.91in
	Weight	160g	650g	211g	790g
		5.64oz	22.93oz	7.44oz	27.87oz
	Operating Temperature	-40 ~ 85°C			
		-40 ~ 185°F			

# Latching USB Cable

Latch-locking connector protects the connection from coming loose or undone due to external shock.



AM-AM



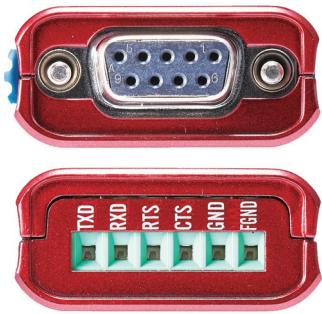
AM-AF

# Surge Protector

Surge Protector(Surge Suppressor) is mounted on RS232 or RS422/485 signal lines to protect the equipment from surge impacts from various external equipment.



SP-1010 DIT/232  
Mounted on RS232 signal lines



SP-1010 DIT/Combo  
Mounted on RS422/485 signal lines

# DB9 to Terminal Block

When using the serial connectivity in a variety of industrial equipment, sometimes it requires to use terminal block instead of d-sub connector. In this case the user would have to make a separate cable for the serial port. Here is a product designed to solve such inconvenience.

## 5 pin terminal block converter (pair)



CS-95/M  
DE9(male) to 5 pin terminal block



CS-95/F  
DE9(female) to 5 pin terminal block

## 9 pin terminal block converter without any screws

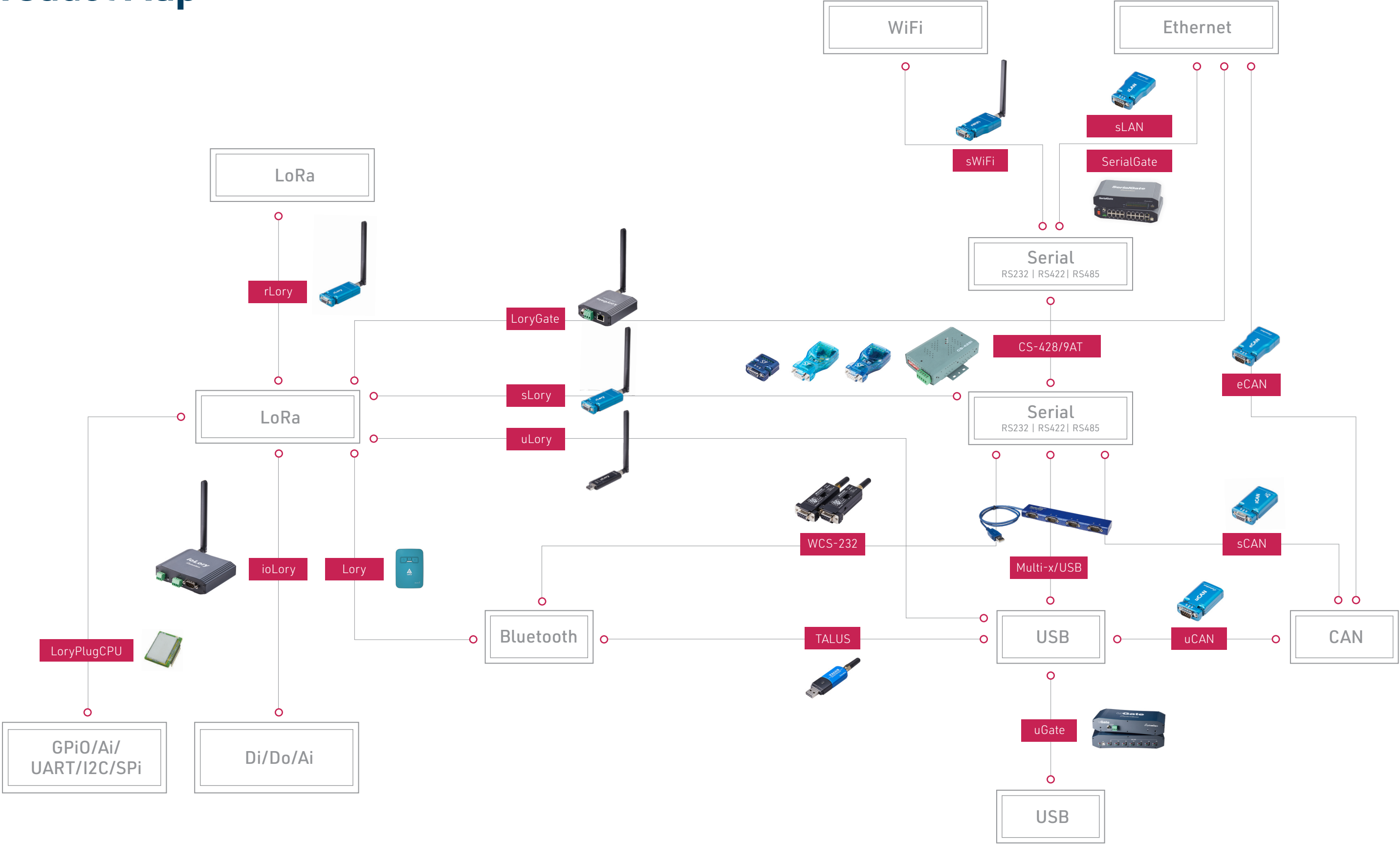


CS-99/M  
DE9(male) to 9 pin terminal block



CS-99/F  
DE9(female) to 9 pin terminal block

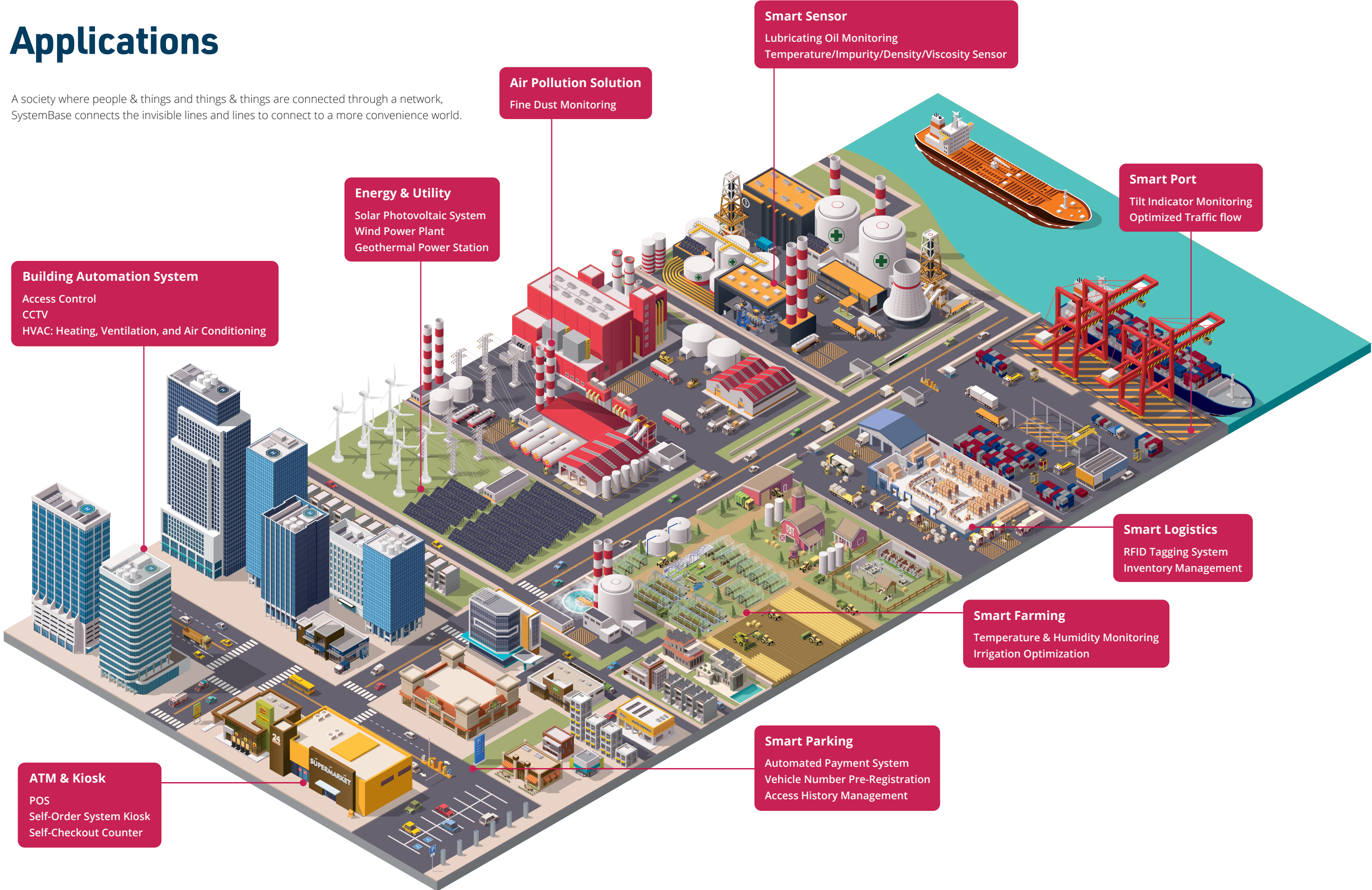
# Product Map





# Applications

A society where people & things and things & things are connected through a network, SystemBase connects the invisible lines and lines to connect to a more convenience world.





16F Daerung Post Tower-1, Digital-ro 288,  
Guro-gu, Seoul, Republic of Korea 08390

**Web.** [www.sysbas.com](http://www.sysbas.com)  
**Email.** [overseas@sysbas.com](mailto:overseas@sysbas.com)  
[tech@sysbas.com](mailto:tech@sysbas.com)  
**Tel.** +82-2-855-0501  
**Fax.** +82-2-855-0580



RMA



UTILITY



WEBSITE