Sample kit feature list

Introduction

The following kit provides a sample of Philips UART (Universal Asynchronous Receiver Transmitter) devices. These products can provide all your system needs for asynchronous serial communications, which offer faster time to market. They offer a competitive pricing advantage, and with its own fab, Philips can meet your demands in a short time. The table in the back provides a comparison between the Philips Industrial UARTs and Philips SC16C devices, allowing the designer to choose the most suitable solution for a given application.

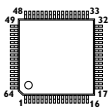
SC16C650

- Single channel UART compatible to the ST16C650
- 5 V / 3.3 V / 2.5 V operation
- Compatible to 16C450 on reset
- 3 / 2 / 1 Mbps at 5 V / 3.3 V / 2.5 V operation
- 32 bytes FIFO on both directions (transmit and receive)
- Auto hardware and software flow control
- Four interrupt trigger levels on transmit and receive
- Industrial temperature range: -40 to +85 Celsius at commercial pricing
- Programmable XON / XOFF characters
- IrDA encoder/decoder interface
- Sleep mode
- 48 leads; body 7 x 7 x 1.4 mm

SC16C752

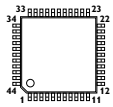
- Dual channel UART compatible to TL16C752
- 5 V / 3.3 V / 2.5 V operation
- Pin compatible to 16C2550
- 5 / 5 / 3 Mbps at 5 V / 3.3 V / 2.5 V operation
- 64 bytes FIFO on both directions (transmit and receive)
- Auto hardware and software flow control
- Programmable interrupt trigger levels
- Industrial temperature range: -40 to +85 Celsius at commercial pricing
- Sleep mode
- 48 leads; body 7 x 7 x 1.4 mm

SC16C654



- Quad channel UART
- 5 V / 3.3 V / 2.5 V operation
- Pin compatible to ST16C554 / TL16C554
- 5 / 5 / 3 Mbps at 5 V / 3.3 V / 2.5 V operation
- 64 bytes FIFO on both directions (transmit and receive)
- Auto hardware and software flow control
- Four interrupt trigger levels on transmit and receive
- Industrial temperature range: -40 to +85 Celsius at commercial pricing
- Intel or Motorola hardware interface
- Programmable XON / XOFF characters
- IrDA encoder / decoder interface
- Sleep mode
- 64 leads; body 10 x 10 x 1.4 mm

SC28L92



- Motorola or Intel bus interface
- 5 V / 3.3 V operation
- Industrial temperature -40 to +85 Celsius at commercial pricing
- 1 Mbps at 5 V / 3.3 V operation
- Independent asynchronous receiver/transmitters
- IACKn, DACKn and interrupt vector for Motorola
- FIFO status for DMA interface to Rx and Tx
- 16 character FIFOs for each receiver and transmitter
- Multiple data formats
- Automatic 9 bit mode (multi drop)
- Auto Line break detection and generation
- Normal (full–duplex), Auto echo, Local and Remote loop back
- Multi–function 15 bit port
- Versatile interrupt system
- Watch dog timer for each receiver
- Automatic wake–up mode for multi–drop applications
- On–chip crystal oscillator
- Power down mode
- Powers up to emulate legacy UARTs
- 44 leads; body 10 x 10 x 1.75 mm

UART Applications

Any place where two or more systems (computer systems, alarm systems, engine control systems. etc.) must communicate

Telecom / Networking

- Base Stations, PABX systems, Switches, Splitter
- Serial to Fiber Optic Converter
- ADSL
- Next Generation “Home” Phones
- USB hub boxes
- WLAN, 802.11 GPRS

Home / Office

- Navigation systems
- PC, Server
- Fax servers, Printer
- Rack modems
- Home Automation (energy monitoring, lighting control, metering)
- Internet Appliances

Consumer / Industrial

- Industrial automation control (distributed control)
- Slot Machine
- Security, Telematic tracking device
- Data exchange via Serial ports
- Medical Monitors, Instrumentation
- Scanner
- Point of sales
- Protocol Converters (USB—RS232 / 485, CAN—RS232 / 485 & 10b, Ethernet—RS232 / 485)

PHILIPS

Differences between Philips Industrial UARTs* and Philips SC16Cxxx devices

Feature	Industrial	SC16Cxx
Supply Voltage	3.3 V and 5.0 V	2.5 V, 3.3 V and 5.0 V
Temperature Range	-40 to +85 °C[1]	-40 to +85 °C[1]
Channels	1, 2, 4, and 8	1, 2, and 4
Synchronous Bus Interface	Yes[2]	No
Independent Transmit & Receive Baud Rates	Yes	No
Maximum FIFO Depth	16 Bytes	64 Bytes
Transmit and Receive FIFOs	Yes[3]	Yes[3]
In-Band (Software) Flow Control (Xon / Xoff)	Yes	Yes
Out-of-Band (Hardware) Flow Control (RTS / CTS)	Yes	Yes
Multi-Drop Mode	Auto	Programmable
Character Recognition (Also Used for Xon / Xoff)	Yes	Yes
Bus Cycle Time (Read Strobe + Read Cycle Delay)	125 ns	43 ns
Bus Interface	Intel, Motorola or Both	Intel, Motorola or Both
Interrupt Priority	Programmable	Fixed
Programmable Interrupt Vector Format	Yes	No
IACKN and DACKN Signal Pins	Yes	No
Transmitter and Receiver Software Reset	Yes	No
Independent Transmitter and Receiver Enable / Disable	Yes	No
Maximum Baud Rate	1 Mbps	5 Mbps
Watch Dog Timer	Yes	No
Programmable Data Format	5 to 8 Data Bits	5 to 8 Data Bits
Parity Format	Odd, Even, Forced, None	Odd, Even, Forced, None
Number of Stop Bits	1, 1-1/2, or 2	1, 1-1/2, or 2
Baud Rate Selection	Programmable	Programmable
Parity, Framing, & Overrun Detection	Yes	Yes
Line Break Detection & Generation	Yes	Yes
Automatic Echo of Character Received from Host by UART	Yes	No
Local Loop Back	Yes	Yes
Remote Loop Back	Yes	No
Programmable I/O Port Pins	Yes	No
Infrared IrDA Interface	No	Yes
Change-of-State Detection	CD, RI, CTS, DSR, and all I/O pins	CD, RI, CTS, DSR
Power Down Mode	Yes[4]	Yes[4]
Clock Frequency Using On-Chip Oscillator and External Crystal	2 to 8 MHz	Up to 24 MHz
TTL Input Levels	Yes	Yes
Software	Similar structures but different low level routines	
Pinning (Pin-Out)	Not Compatible	Not Compatible

* Note: UART Products falling into Indutrial Category are: SCCxxx, SCNxxx, SC28xxx, SC26xxx, SC28Lxxx

[1] Industrial temperature at commercial price

[2] Synchronous use requires a clock from host

[3] FIFO depth varies depending on UART

[4] Clock is shut off, but register contents remain

www.semiconductors.philips.com

Useful Links

- Application notes: www.semiconductors.philips.com/logic/support/appnotes/datacom
- Send technical questions to E-mail box: datacom.tech-support@philips.com
- Brochures / Datasheets / Literature / FAQ: www.semiconductors.philips.com/logic/datacom

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