MSI PC/104
Embedded PC Series

MSI-P604 Trimble C2626
GPS & Digital I/O Card

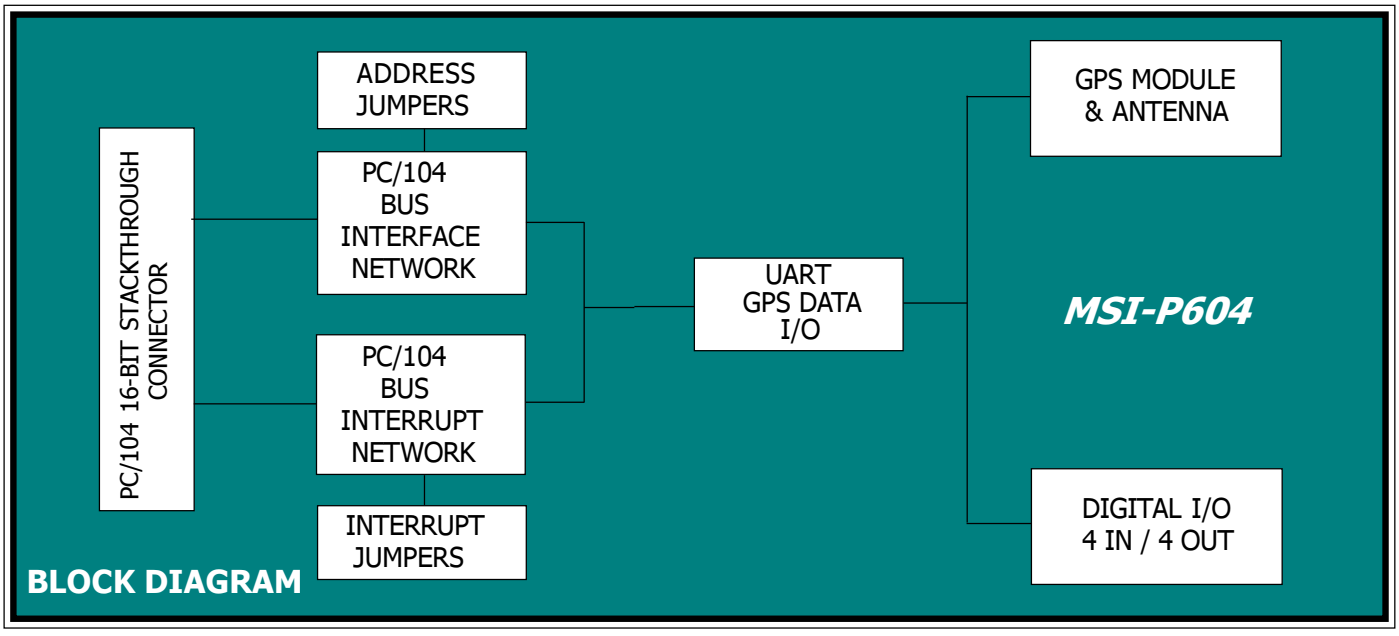
FEATURES

- Supports NMEA 0183 protocol.
- 22-channel simultaneous operation.
- Antenna open and short circuit detection and protection.
- Full-duplex serial port for navigation and control.
- Active antenna with 5 meter (16.5 ft.) cable.
- TTL digital I/O port with 4 inputs and 4 outputs.
- Jumper selectable address and interrupt options.
- Operating temperature range -40° C to 85° C.
- One-year warranty from date of shipment.

DESCRIPTION

The MSI-P604 is a low cost, high performance global positioning system which uses the Trimble Condor C2626 module. The module provides the popular protocol NMEA 0183 and is the protocol-only alternative to the Trimble Lassen iQ module. The C2626 is supplied in the same mechanical package as the Lassen iQ, but features greatly improved sensitivity and tracking abilities. The card provides a serial port for processing the GPS data at a default BAUD rate of 9600. Software selectable NMEA protocols are GGA, GSA, GSV, RMC, CHN, GLL, VTG and ZDA, where the first four are the default values. Baud rates are selectable from 2400 to 115,200. The serial port is a standard IBM PC compatible UART jumper selectable for COM1 thru COM4 with an optional selectable 16-bit offset address. A time mark of 1 PPS is available as an interrupt or as input into modem status line DCD of the UART for synchronizing events. The UART interrupt is also provided for allowing interrupt processing of GPS data. Interrupts are jumper selectable for

(cont.)



BLOCK DIAGRAM

IRQ3 thru IRQ7 and IRQ9, as described in the next section.

Four TTL level digital inputs are provided by status lines CTS DSR, RI and DCD of the UART. The DCD input is jumper selectable and is used as either a digital input or as status for the UART interrupt. Four TTL level outputs are provided by OUT1, OUT2, RTS and DTR of the UART.

The card is supplied with an active antenna having a 5 meter (16.5 ft.) cable and a spacer kit. A sample test program is supplied that illustrates programming of the UART for the various protocols and data transfer rates. Operates from -40° to 85° C.

SPECIFICATIONS

PC/104 8-bit, stackthrough

GPS Accuracy

Update Rate	1 Hz (default), up to 5 Hz
Number of Channels	22
Accuracy	
Position (autonomous)	<2.5 m 50%, <5 m 90%
Position (SBAS)	<2 m 50%, <4 m 90%
Altitude (autonomous)	<5 m 50%, <8 m 90%
Altitude (SBAS)	<3 m 50%, <5 m 90%
PPS	< +/- 25 ns @ 50%
Acquistion time	
Re-Acquisition	2 s 50%
Hot Start	2 s 50%
Warm Start	35 s 50%
Cold Start	38 s 50%
Sensitivity	
Tracking	.160 dBm
Acquistion	.146 dBm
Dynamics	
Acceleration	2 g
Max Operational Velocity	515 m/s

GPS Protocols

GGA	Default	GPS fix data
GSA	Default	GPS DOP and active satellites
GSV	Default	GPS satellites in view
RMC	Default	Recommended minimum specific GPS/Transit data
CHN	Other	GPS channel status
GLL	Other	Geographic position . Latitude/ Longitude
VTG	Other	Track Made Good and Ground Speed
ZDA	Other	Time and date

GPS Antenna

Active	with 5m (16.5 ft) cable
Model	Compact Magnetic Mount

Digital I/O Port

4 Input	TTL level (Inverted)
4 Output	TTL level (Inverted)

Serial Port

Primary	Jumper selectable as COM1 thru COM4 w/offset

Interrupts

IRQ3-7 and IRQ9	Jumper selectable

Option Jumpers

.025" square posts, 0.1" grid

Digital I/O Connector

3M 30316-5002

Electrical & Environmental

+5V @ 70 mA typical, continuous mode

-40° to 85° C

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