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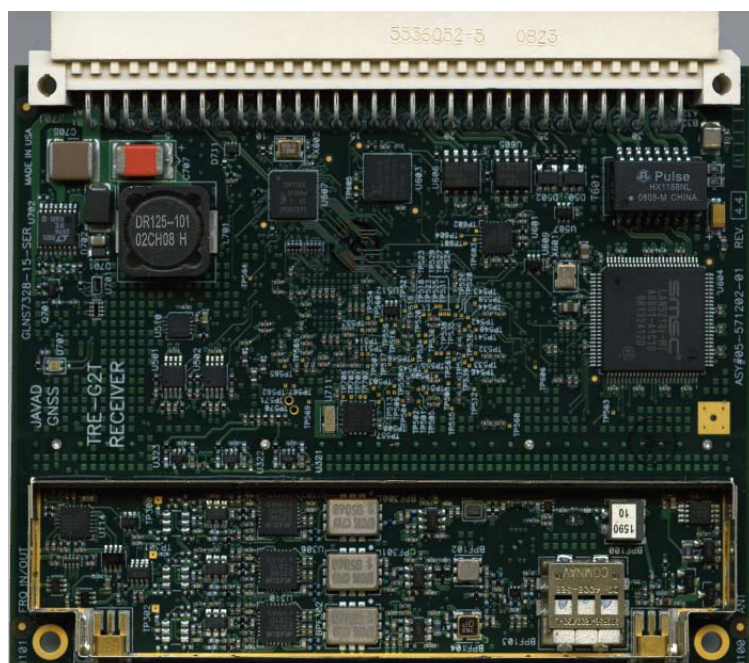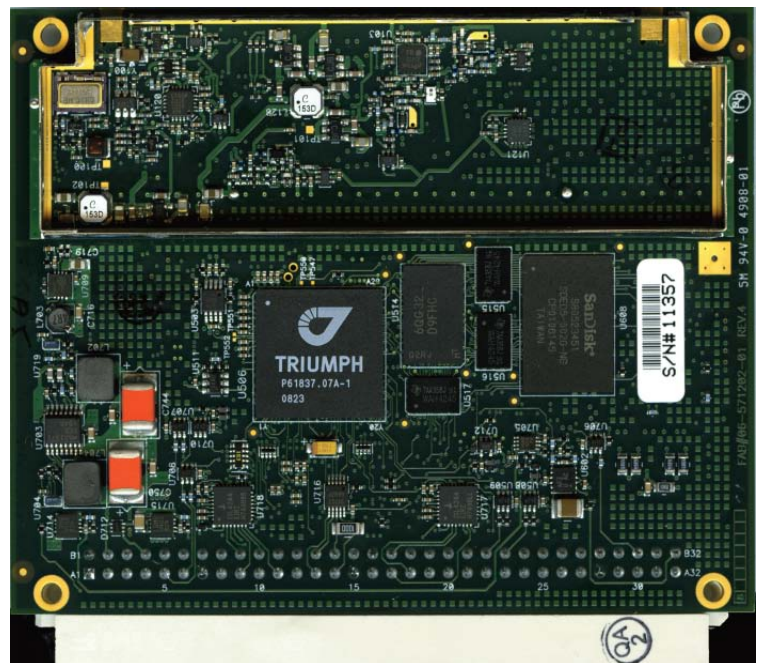
INSTRUMENTATION DEVICES SRL

JAVAD

TRE-G2T

TRE-G2T OEM board is based on our TRIUMPH Technology implemented in our TRIUMPH Chip. For the first time in the GNSS history we offer up to 100 Hz RTK. The TRE-G2T board includes the true Galileo option.

The on-board power supply on TRE-G2T OEM board accepts any voltage from +4.5 to +40 volts and delivers clean filtered voltage where needed. This eliminates the risk of power contamination (ripples) that can be created when clean power is generated elsewhere and delivered to the board via cables. TRE-G2T board also includes drivers for four LEDs, ON/OFF and function button controllers. In addition, the board comes with large amount of flash for data storage. The CAN interface in TRE-G2T board is provided complete with all associated hardware and firmware, not just the CAN bus. The same is true with all the serial RS232/RS422 ports in our board. Simply stated, additional functions are not needed to incorporate any of our TRE-G2T OEM board in most applications.

In addition to timing strobes and event markers, the TRE-G2T OEM board includes the option of complete IRIG timing system.

TRE-G2T OEM Board

Description	I/O	Signal Name	Pin #	Pin #	Signal Name	I/O	Description
Power Ground		PGND	A1	B1	PGND		Power Ground
+4.5 to +40 VDC Power Input	I	PWR_IN	A2	B2	PWR_IN	I	+4.5 to +40 VDC Power Input
Factory use only, must be left open		FUO	A3	B3	COMMSW#	I	Active Low Command Input (FN Button) *1
Reserved		-	A4	B4	KA_PWR	I	Keep-Alive Power input for Real-Time Clock (+4.5 to +40 VDC, 10µA typ)
External LED Control *2	0	LED2_RED	A5	B5	LED1_RED	0	External LED Control *2
External LED Control *2	0	LED2_GRN	A6	B6	LED1_GRN	0	External LED Control *2
Signal Ground		GND	A7	B7	USB_PWR	I	USB port Power Input line
USB port D- line	I/O	USB_D-	A8	B8	USB_D+	I/O	USB port D+ line
Serial port A TXD line	0	TXDA	A9	B9	CTSA	I	Serial port A CTS line
Serial port A RXD line	I	RXDA	A10	B10	RTSA	0	Serial port A RTS line
Serial port C TXD line	0	TXDC	A11	B11	CTSC	I	Serial port C CTS line
Serial port C RXD line	I	RXDC	A12	B12	RTSC	0	Serial port C RTS line
RS-422 port TXD+ line	0	TXDD+	A13	B13	TXDD-	0	RS-422 port TXD- line
RS-422 port RXD+ line	I	RXDD+	A14	B14	RXDD-	I	RS-422 port RXD- line
Signal Ground		GND	A15	B15	-		Reserved
Reserved		-	A16	B16	-		Reserved
Serial port B TXD line	0	TXDB	A17	B17	CTSB	I	Serial port B CTS line
Serial port B RXD line	I	RXDB	A18	B18	RTSB	0	Serial port B RTS line
CAN1 port CAN-H line	I/O	CAN1H	A19	B19	CAN1L	I/O	CAN1 port CAN-L line
CAN2 port CAN-H line	I/O	CAN2H	A20	B20	CAN2L	I/O	CAN2 port CAN-L line
Factory use only, must be left open		FUO	A21	B21	-		Reserved
Signal Ground		GND	A22	B22	1PPSA	0	1 Pulse Per Second output A *3
Signal Ground		GND	A23	B23	1PPSB	0	1 Pulse Per Second output B *3
Signal Ground		GND	A24	B24	EVENTA	I	Event input A *4
Signal Ground		GND	A25	B25	EVENTB	I	Event input B *4
Configurable Logic-Level I/O 0 line	I/O	GPIO0	A26	B26	GPIO1	I/O	Configurable Logic-Level I/O 1 line
Configurable Logic-Level I/O 2 line	I/O	GPIO2	A27	B27	GPIO3	I/O	Configurable Logic-Level I/O 3 line
Signal Ground		GND	A28	B28	RESET_IN#	I	Active Low Reset input *5
Ethernet port TX+ line	0	LAN_TX+	A29	B29	LAN_TX-	0	Ethernet port TX- line
Signal Ground		GND	A30	B30	LAN_LED	0	Ethernet port control for external LED
Ethernet port RX+ line	I	LAN_RX+	A31	B31	LAN_RX-	I	Ethernet port RX- line
Active Low input for ON/OFF switch *7	I	ONOFFSW#	A32	B32	IRIG_OUT	0	IRIG port output line *6

*1. Active Low input from the FN button of the MinPad. Must be left open if not used.

*2. LED1_GRN and LED1_RED are used to control the STAT LED of the MinPad. LED2_GRN and LED2_RED are equivalent to the REC LED of the MinPad. The output is a +3.3V driver in series with 100 Ohm resistor for each LED. LEDs should be with common cathode.

*3. Voh>1,8V at 50 Ohm load.

*4. Internal pull-up 5 kOhm to +3.3V

*5. Connect to ground to activate. Internal pull-up 2 kOhm to +3.3V.

*6. AM sine-wave signal; 2.1Vp-p (Mark), 0.7Vp-p (Space).

*7. Active Low input which is equivalent to ON/OFF button of the MinPad. The pin must be connected to GND permanently if the board is required to turn on automatically any time external power is applied to pins A2 and B2.

Tracking Features
- Total 216 channels: all-in-view
- GPS L1/L2/L2C/L5
- Galileo E1/E5A
- SBAS
- Advanced Multipath Reduction
- Fast acquisition channels
- High accuracy velocity measurement
- Almost unlimited altitude and velocity (for authorized users)

Data Features
- Up to 100 Hz update rate for real time position and raw data (code and carrier)
- 10 cm code phase and 1 mm carrier phase precision
- Hardware Viterbi decoder
- RTCM SC104 versions 2.x and 3.x Input/Output
- NMEA 0183 versions 2.x and 3.0 Output
- Code Differential Rover
- Code Differential Base
- Geoid and Magnetic Variation models
- RAIM
- Different DATUMs support
- Output of grid coordinates

Data Storage
- Up to 2048MB of onboard non-removable memory for data storage

Input/Output
- Three high speed RS232 serial ports (up to 460.8 Kbps)
- High speed RS422 serial port (up to 460.8 Kbps)
- High speed USB 2.0 device port (480 Mbps)
- Full-duplex 10BASE-T/100BASE-TX Ethernet port
- Two CAN 2.0 A/B ports
- IRIG timecode output
- Two 1 PPS outputs synchronized to GPS or UTC
- Two Event Marker inputs
- External Reference Frequency Input/Output
- MinPad interface: Four external LED drivers, ON/OFF control and External Command inputs
- Four Configurable Logic-Level GPIO ports

Electrical
- On-board power supply accepts any unregulated voltage between +4.5 to +40 Volts
- Keep-Alive Power input accepts any unregulated voltage between +4.5 to +40 Volts
- The central pin of the antenna connector outputs +5 VDC to power LNA. The sourced current is 0.1 A max.
- Power consumption: 2.7 Watt

Environmental
- Operating Temperature: -35°C to +75°C
- Storage Temperature: -40°C to +85°C
- High shock and vibration resistance

Physical
- Dimensions: 100x80 mm
- Weight: 70 g
- Digital connector: 64-pin DIN41612 type B Right Angle, AMP p/n 536052-5.
- RF connectors: both MMCX Jack, edge mount, AMPHENOL, P/N 908-22100

J100 is GNSS antenna input connector. The central pin of this connector supplies +5V voltage for LNA with sourced current up to 0.1A.

J101 is External Reference Frequency connector. Analog reference clock input (0.5Vpp to 3Vpp, 5/10/20MHz). This input can be configured as output for 20 MHz internal reference oscillator (clipped sine wave, 0.5Vpp @ 50 Ohm load).
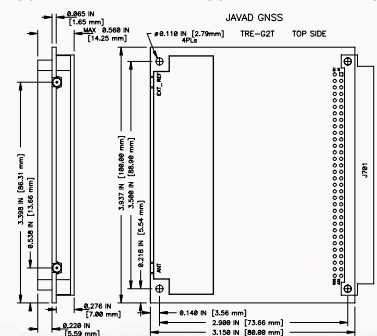
Specifications are subject to change without notice.

JAVAD GNSS
www.javad.com
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