



# JAVAD

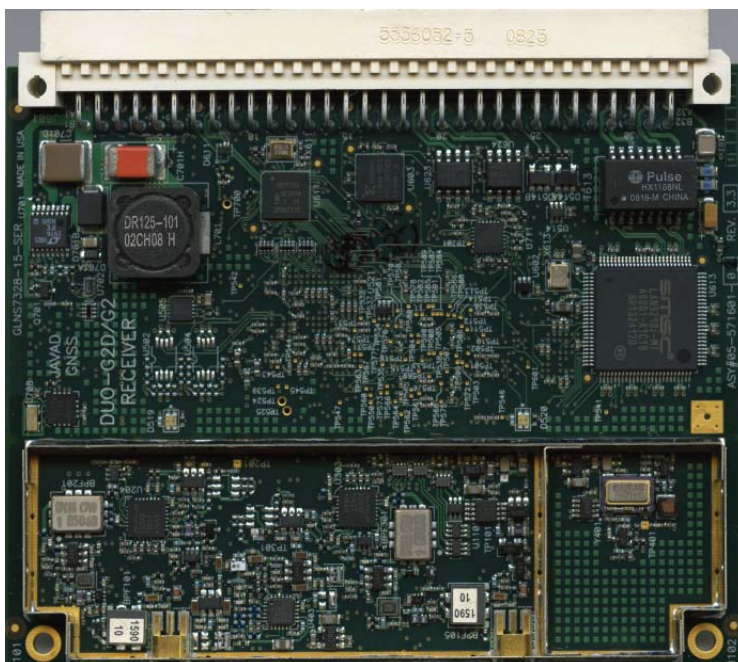
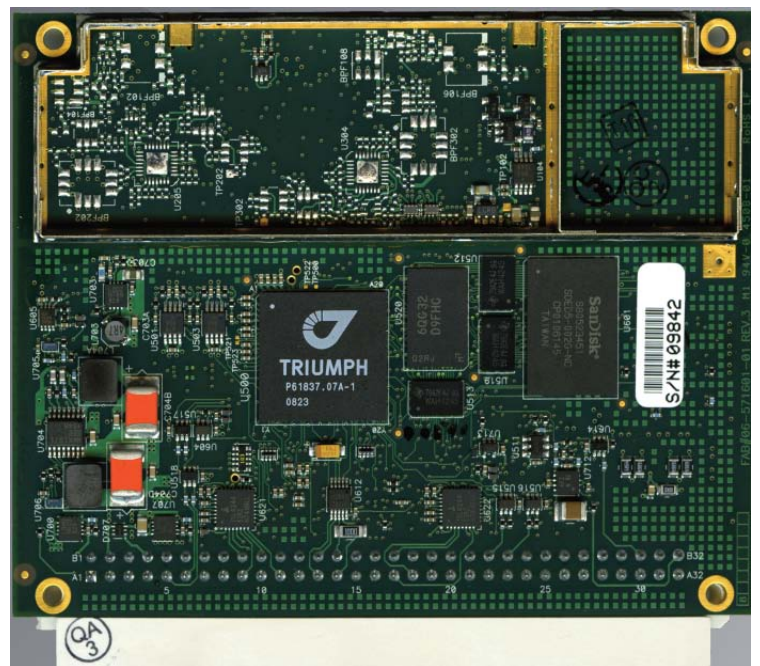
## Duo-G2

Duo-G2 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 Duo-G2 board includes the true Galileo option.

Duo-G2 is a 100x80 mm half Euro-card board that accepts inputs from up to two antennas. It is equivalent of two receivers which operate synchronously with a common oscillator and central processor to coordinate all communications and other activities. Each of the two receivers track 14 each of GPS L1 and Galileo E1.

Duo-G2 is for heading applications where single frequency GPS and Galileo can do the job and cost is a significant factor. It can also be used in positioning applications where a single antenna is not sufficient to observe satellites in all orientations and positions.

We have determined that addition of GLONASS satellites does not add any advantage in this case and does not justify the additional cost. The on-board power supply on



Duo-G2 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. Duo-G2 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 Duo-G2 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 Duo-G2 OEM board in most applications.

In addition to timing strobes and event markers, the Duo-G2 OEM board includes the option of complete IRIG timing system.

# Duo-G2 OEM BOARD

Description	I/O	Signal Name	Pin #	Pin #	Signal Name	I/O	Description
Power Ground		PGND	<b>A1</b>	<b>B1</b>	PGND		Power Ground
+4.5 to +40 VDC Power Input	I	PWR_IN	<b>A2</b>	<b>B2</b>	PWR_IN	I	+4.5 to +40 VDC Power Input
Factory use only, must be left open		FUO	<b>A3</b>	<b>B3</b>	COMMSW#	I	Active Low Command Input (FN Button) *1
Reserved		-	<b>A4</b>	<b>B4</b>	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	<b>A5</b>	<b>B5</b>	LED1_RED	0	External LED Control *2
External LED Control *2	0	LED2_GRN	<b>A6</b>	<b>B6</b>	LED1_GRN	0	External LED Control *2
Signal Ground		GND	<b>A7</b>	<b>B7</b>	USB_PWR	I	USB port Power Input line
USB port D- line	I/O	USB_D-	<b>A8</b>	<b>B8</b>	USB_D+	I/O	USB port D+ line
Serial port A TXD line	0	TXDA	<b>A9</b>	<b>B9</b>	CTSA	I	Serial port A CTS line
Serial port A RXD line	I	RXDA	<b>A10</b>	<b>B10</b>	RTSA	0	Serial port A RTS line
Serial port C TXD line	0	TXDC	<b>A11</b>	<b>B11</b>	CTSC	I	Serial port C CTS line
Serial port C RXD line	I	RXDC	<b>A12</b>	<b>B12</b>	RTSC	0	Serial port C RTS line
RS-422 port TXD+ line	0	TXDD+	<b>A13</b>	<b>B13</b>	TXDD-	0	RS-422 port TXD- line
RS-422 port RXD+ line	I	RXDD+	<b>A14</b>	<b>B14</b>	RXDD-	I	RS-422 port RXD- line
Signal Ground		GND	<b>A15</b>	<b>B15</b>	-		Reserved
Reserved		-	<b>A16</b>	<b>B16</b>	-		Reserved
Serial port B TXD line	0	TXDB	<b>A17</b>	<b>B17</b>	CTSB	I	Serial port B CTS line
Serial port B RXD line	I	RXDB	<b>A18</b>	<b>B18</b>	RTSB	0	Serial port B RTS line
CAN1 port CAN-H line	I/O	CAN1H	<b>A19</b>	<b>B19</b>	CAN1L	I/O	CAN1 port CAN-L line
CAN2 port CAN-H line	I/O	CAN2H	<b>A20</b>	<b>B20</b>	CAN2L	I/O	CAN2 port CAN-L line
Factory use only, must be left open		FUO	<b>A21</b>	<b>B21</b>	-		Reserved
Signal Ground		GND	<b>A22</b>	<b>B22</b>	1PPSA	0	1 Pulse Per Second output A *3
Signal Ground		GND	<b>A23</b>	<b>B23</b>	1PPSB	0	1 Pulse Per Second output B *3
Signal Ground		GND	<b>A24</b>	<b>B24</b>	EVENTA	I	Event input A *4
Signal Ground		GND	<b>A25</b>	<b>B25</b>	EVENTB	I	Event input B *4
Configurable Logic-Level I/O 0 line	I/O	GPIO0	<b>A26</b>	<b>B26</b>	GPIO1	I/O	Configurable Logic-Level I/O 1 line
Configurable Logic-Level I/O 2 line	I/O	GPIO2	<b>A27</b>	<b>B27</b>	GPIO3	I/O	Configurable Logic-Level I/O 3 line
Signal Ground		GND	<b>A28</b>	<b>B28</b>	RESET_IN#	I	Active Low Reset input *5
Ethernet port TX+ line	0	LAN_TX+	<b>A29</b>	<b>B29</b>	LAN_TX-	0	Ethernet port TX- line
Signal Ground		GND	<b>A30</b>	<b>B30</b>	LAN_LED	0	Ethernet port control for external LED
Ethernet port RX+ line	I	LAN_RX+	<b>A31</b>	<b>B31</b>	LAN_RX-	I	Ethernet port RX- line
Active Low input for ON/OFF switch *7	I	ONOFFSW#	<b>A32</b>	<b>B32</b>	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
- Galileo E1
- 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
- MinPad interface: Four external LED drivers, ON/OFF control and External Command inputs
- Four Configurable Logic-Level GPIO ports

## Electrical

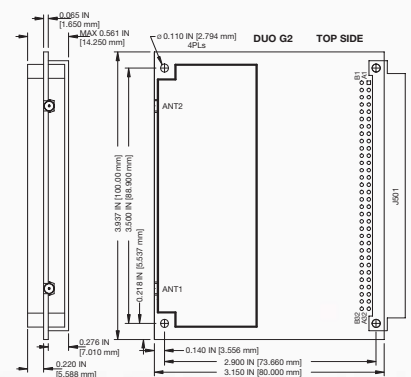
- On-board power supply accepts any unregulated voltage between +4.5 to +40 Volts
- Keep-Alive Power input accepts any unregulated voltage between +4.5 to +40 Volts
- The central pin of the antenna connector outputs +5 VDC to power LNA. The sourced current is 0.1 A max.
- Power consumption: 2.2 Watt

## 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: 90 g
- Digital connector: 64-pin DIN41612 type B Right Angle, AMP p/n 536052-5.
- RF connectors: MMCX Jack, edge mount, AMPHENOL, P/N 908-22100



Specifications are subject to change without notice.



**JAVAD GNSS**  
www.javad.com

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