Jupiter 11 vs. Jupiter 10
Physical and Operational Differences

June 13, 2001

The introduction of version 11 of the venerable Jupiter GPS Receiver family extends the Jupiter family in new directions. As a result of these new applications, some changes had to be made to the family. Those changes that affect users of the most recent Jupiter 10 version are detailed in the sections below.

Physical Changes

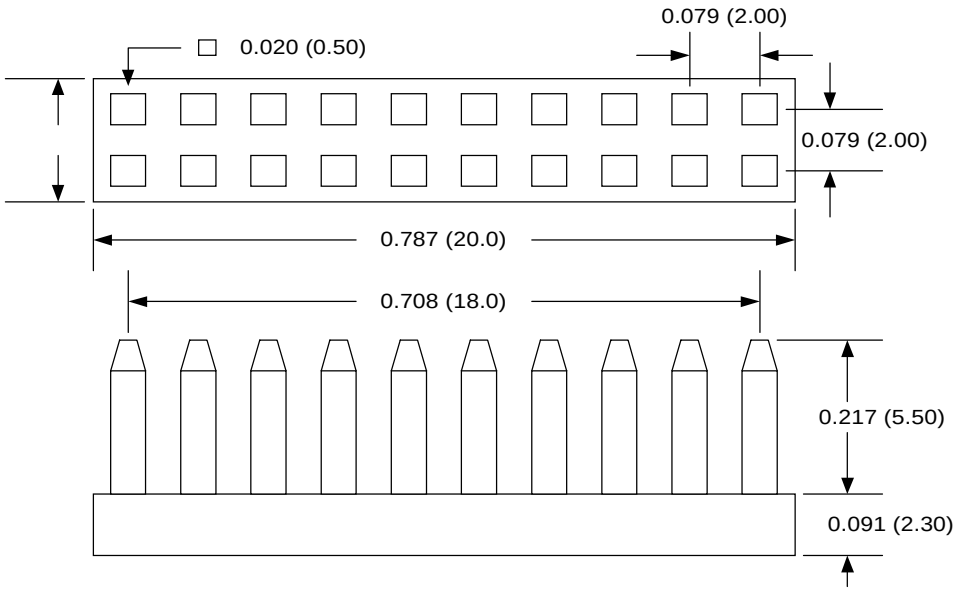
Jupiter 10 boards (part numbers TU30-D140-371, TU30-D140-381 and TU30-D140-391) were all powered by 5 V. Jupiter LP (based on Jupiter version 8, part number TU30-D160-021 and TU30-D160-031) was powered by 3.3 V. All of these boards have 20-pin interface connectors of varying height. Jupiter 11 boards that replace these boards have 20-pin interface connectors of only 1 height, 0.307 inches, of which 0.217 inches is exposed pin and 0.091 inches is connector body. Table 1 lists the former part numbers and pin heights, and the new part numbers for Jupiter 11 boards that replace them. Figure 1 shows the actual physical dimensions of the new connector.

Board Configuration	**Jupiter 10**		**Jupiter 11**	
	Part Number	**Pin Height inches (mm)**	**Part Number**	**Pin Height inches (mm)**
5 V, Straight OSX	TU30-D140-371	0.300 (7.62)	TU30-D410-031	0.217 (5.50)
5V, Right-Angle OSX	TU30-D140-381	0.300 (7.62)	TU30-D410-021	0.217 (5.50)
5V, Right-Angle SMB	TU30-D140-391	0.400 (10.16)	TU30-D410-041	0.217 (5.50)
3.3 V, Straight OSX	TU30-D160-021	0.250 (6.35)	TU30-D400-031	0.217 (5.50)
3.3 V, Right-Angle OSX	TU30-D160-031	0.300 (7.62)	TU30-D400-021	0.217 (5.50)

Table 1. Part Number and Pin Height Changes

Aside from pin-height changes, there are no additional physical changes that affect board installations between the Jupiter 11 and previous versions. Mounting holes and board maximum dimensions are the same, and connector locations and spacing are unchanged.

Figure 1. Jupiter 11 20-Pin I/O Connector Dimensions
Dimensions are inches (mm)



The addition of the Jupiter 11 Dead-Reckoning (DR) board to the Jupiter line has necessitated alteration of the usage of some interface pins on the 20-pin interface connector. Customers who do not use the DR board will find the pin functions unchanged and do not need to make any changes to their host systems. For the DR boards, interface connector pins 6, 7 and 9 have new functions. Table 2 lists those changes.

Battery backup power is now controlled in a different way on the board. Previous versions of the Jupiter board required that battery backup voltage be less than primary voltage, or the unit would draw current from the backup battery when the board was powered by primary power. That is no longer the case. Now battery backup voltage is limited to 2.5 to 3.5 V, regardless of the primary power requirements, and a power supervisor device ensures that when primary power is above its minimum limit, no current will be consumed from the backup source.

Interface Connector Pin	**Standard Function (When Grounded at Reset)**	**DR-Board Function**
6	Not Used (Reserved)	0-5 V Gyro Input
7	Select NMEA Protocol	Backup Sensor (ground = backing up)
9	Not Used (Factory Use)	Speed Pulse (wheel tick) Input

Table 2. Interface Conector Pin Functions

Software Changes

Customers currently using Jupiter boards with software versions 1.80 up to 2.75 will find the version 3.00 (or later) software compatible. All software changes have been made in such a way to leave existing functions and message structures unchanged. Changes that have been made have been implemented without affecting messages, or by extending the message set to include new messages.

Many software changes were made that improve existing functions without changing any of the messages. These changes include:

- Improved navigation accuracy.
- Improved timing accuracy.
- Improved ground track smoothing for better altitude accuracy.
- Improved navigation accuracy in power-management mode (3.3 V board only).
- Improved accuracy of first fix.
- Upgraded cold-start algorithm to enhance tolerance for signal blockage during satellite acquisition.
- Improved the message output operations for messages output upon data update.

The existing message repertoire has been expanded to include new messages for the DR board, the Hardware Accelerator board (TU30-D430-xxx) and for other, expanded functions. A complete list of these new messages and their formats is available in the Version 3.00 Software Release Note, available from Conexant sales offices.