

PRODUCT CHANGE NOTICE



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Products: Symmetricom/Datum* bc635/637VME-350/357VXI Time & Frequency Processor
Product Family Redesign

<u>Product Identity/Model:</u>	<u>Product Code/Assembly:</u>
bc635VME	BC11603-2001
bc637VME	BC11603-3001
bc350VXI	BC11603-2002
bc357VXI	BC11603-3002
bc350VXI-C	BC11963-1000
bc357VXI-C	BC11963-2000

Technical Support TTM Division:
1-888-367-7966 (1-888-FOR-SYMM) toll-free in the USA, Option 1, Option 3
1-408-428-7907 Worldwide, Option 1, Option 3

VME Product Family Redesign

Due to multiple obsoleted and/or sole source parts, the bc635/637VME product series has undergone a redesign. The replacement is the TTM635/637VME series. This updated hardware is a surface mount board, and is nearly form, fit and function backward compatible with the bc635/637VME product series. Customers using the bc635/637VME products should find near seamless transition to the TTM635/637VME models.

The most noteworthy change is the Acutime GPS antenna and related connector on the older bc637VME/VXI board has been replaced with the newer ACE III GPS module and related connector on the TTM637VME/VXI. This means that the new TTM637VME/VXI will not connect to the antenna cable used by the older bc637VME/VXI and the Acutime GPS antenna is not compatible with the new TTM637VME/VXI.

Hardware Changes:

1. Changed board layout and re-sequenced most reference designators.
2. Eliminated VR2 pot and improved on-time performance. (The old slammer circuit required adjustment by the VR2 pot.)
3. New serial DAC (AD1866) part replaced obsoleted parallel DAC (Exar MP7626) part. The old DAC used offset binary coding; the new DAC uses 2's compliment. Modified FPGA design to support the serial DAC. See new TTM manual for details.
4. Combined three 3000 series FPGA chips into one Spartan FPGA part. The new board loads the single FPGA from a new serial PROM and the old image in the firmware was removed. The 68HC11 is held in the reset state until the FPGA has completed loading.

5. Combined seven through-hole PALs converted to VHDL, into one surface mount.
6. Changed GPS engine from Acutime smart antenna/receiver series to ACE III receiver and Bullet antenna combination. Designed new end panel for use with the ACE III module.
7. Updated Real Time Clock (RTC) design. Changed battery for RTC from rechargeable Nickel Metal Hydride to non-rechargeable Lithium. Removed the battery recharge circuit and added battery manager circuit.
8. Changed the outputs to use surface mount BUF635 drivers for 1PPS Out, 1,5,10MHz Out, Periodic Out, DCLS Out, Strobe Out and Oscillator Frequency Control Out and Timecode Out. Added pads to these outputs so that series resistors can be added.
9. Changed JP6 from a 1x3 jumper block to a 2x2. (JP6 is a on the 11603 boards.)
10. Created an isolated ground plane for I/O connectors. This plane is tied to the board ground plane by four 0-ohm resistors. These resistors can be removed to isolate the end panel as required.
11. Changed the firmware device from a 256K PROM to a 1M Flash.
12. Added jumper block JP3 to allow output of differential DCLS.
13. Added differential DCLS input capability using JP2A.
14. Added jumper block J9 to select oscillator type: VCXO, OCXO, External.
15. Added jumper block J10 for future use.
16. Added 64 test points to the board. Most test points are labeled with the signal name on the silkscreen.
17. Added pull-up resistor pack RP3 to 68HC11 Data bus.
18. Added series protection resistors for J1 inputs: External 1PPS In, External Event In and DCLS In.
19. Added capability to invert polarity of the differential GPS 1PPS input from the Acutime 2000 using J2A pins 1-2 instead of JP2 pins 3-4.
20. Added pads for optional TD2 and J9 to support external Bias-T for ACE III high gain antenna.
21. Changed VMEbus Data Transceivers from through-hole 74ALS245-1 parts to surface mount 74FCT245T.
22. Changed VMEbus Interrupt driver from through hole 74ALS641A-1 to a surface mount 74FCT621T.
23. Most surface mount resistors and capacitors are now located on the solder side of the board. A solder side silkscreen was added for these components.
24. Added second bus bar location near P1 and P2. For the standard products the stiffener will be installed in the location near the P1 and P2 connectors.
25. Changed the board markings on the top silkscreen to show PART NUMBER P100022_04, TTM635VME/TTM350VXI, ASSY NO 100022.
26. The bottom logo plate now reads TTM635VME instead of bc635VME.
27. Added support for the Acutime GPS module to be enabled by installing connector J4. This connector can also support the Acutime 2000. The existing end panel that is used on the old board is used when J4 is installed.

Firmware Changes:

1. Slammer circuit re-designed to eliminate the VR2 pot and improved on-time performance. (The old slammer circuit required adjustment by the VR2 pot.)

2. Removed standard NASA 36 time code support.
3. Improved IRIG A time code decoding.
4. The upper four bits of the VXI ID and DEVICE registers forced high. (These were floating on the bc635/637 boards.)
5. New serial DAC (AD1866) part replaced obsoleted parallel DAC (Exar MP7626) part. The old DAC used offset binary coding; the new DAC uses 2's complement. Modified U22 FPGA design to support the serial DAC.
6. Updated RTC design. Added bit 7 to the Status nibble in the TIME0 and EVENT0 Fields to indicate the status of the RTC battery. Using the new packet Oc. Added bit 7 to the Status nibble in the TIME0 and EVENT0 Fields to indicate the status of the RTC battery. Added capability to monitor the Battery Fail indication from the battery manager
7. Deleted battery connection MODB to the 68HC11E0 static RAM for variable storage of: Mode, DAC value, Timecode Format, Leap Seconds, Input Timecode, Generator Code, Local Offset, Path Bits and Checksum. These variables are now stored in EEPROM in the new 68HC11E1. All of the variables are updated as they are changed, except for the DAC value. The DAC value is updated twice a day when the status bits are all 0.
8. Added read-back capability for FIFO data packets. New O REQUEST DATA FROM THE TFP packets: a, b, c, f, g, h, i, k, m, p, q, t.
9. Upgraded the oscillator discipline loop.
10. Combined four firmware versions used on the old board for IRIG-VCXO, IRIG-OCXO, GPS-VCXO and GPS-OCXO. One version of firmware is now used to support the standard board types. The oscillator type is selected by JP9 as shown in the manual chapter 2.
11. Changed the function of the LED decimal points. See chapter 6 of the manual for a description of the new decimal point functions.

*On October 4, 2002 Datum merged with Symmetricom, Inc. Complete details and information can be found at www.symmetricom.com.