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Find the *Microsemi / Symmetricom / Datum bc635cPCI* at our website: *Click HERE*

Symmetricom

bc635/637CPCI

Compact PCI Time & Frequency Processor

KEY FEATURES

- CompactPCI™ Bus Operation
- GPS or Time Code Inputs
- Time Code Outputs
- Pulse Rate Outputs
- Frequency Outputs (1, 5, or 10 MHz)
- External Event Capture Register/Interrupt
- Programmable Periodic Output/Interrupt
- Programmable Time Strobe Output/Interrupt
- IEEE 1344 Compliant IRIG B Time Code
- Windows NT/2000/XP Support

Symmetricom's bc635/637 CompactPCI receiver module provides precision time and frequency reference to the host computer system and peripheral data acquisition systems. Time is acquired from either the GPS satellites using a supplied antenna/receiver (bc637CPCI only) or from time code signals, typically IRIG B. Integration of the module is facilitated with optional drivers for Windows NT/2000/XP, Linux, Solaris and VxWorks. CompactPCI uses industry standard mechanical components and high-performance connector technologies to provide a system that is optimized for rugged applications.

Central to the operation of the module is a disciplined 10 MHz oscillator and 100 nanosecond clock. Current time (days to 100 nanoseconds) can be accessed across the CPCI bus with zero latency, which allows for very high speed time requests. The oscillator is rate-matched (disciplined) to the input time source and drives the precision 10 MHz frequency output and time code generator circuitry. If time is lost, the module will continue to maintain time (flywheel). Both time code generation and translation are supported. The generator supplies IRIG B time code output that is synchronized to the input time source. The translator decodes IRIG A, IRIG B and NASA 36.

An Event Time Capture feature provides a means of latching time for an event input. The module can also be programmed to generate a periodic pulse rate as well as to generate a single time strobe at a pre-determined time.



CPCI Time & Frequency Processor (shown with optional antenna/receiver, bc637CPCI)

bc635/637CPCI SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

- Real time clock
  - Bus request resolution: 100 nanoseconds
  - Latency: Zero
  - Major time format: Binary or BCD
  - Minor time format: Binary
- Time code translator
  - Time code formats: IRIG A, IRIG B*, NASA 36 (Modulated or DCLS)
  - Time accuracy: <5 µS (modulated) <1 µS (DCLS)
  - Modulation ratio: 3:1 to 6:1
  - Input amplitude: 500 mV to 5V P-P
  - Input impedance: >10KΩ
  - * See IEEE 1344 Compliance below
- Time code generator
  - Time code format: IRIG B*
  - Modulation ratio: 3:1
  - Output amplitude: 4 V P-P (fixed) into 50Ω
  - DC level shift: TTL/CMOS
  - * See IEEE 1344 Compliance below
- IEEE 1344 compliance

  The translator processes the 27 control function bits of IRIG B time code as set forth in IEEE 1344 (see page 52 of this catalog). The 27 control function bits provided by the input IRIG B time code are output in the generated IRIG B time code one time frame after received. If the input IEEE 1344 bits are not present in the input IRIG B time code, the last two digits of year are placed in bits 1-9 of the control function field of the generated IRIG B time code.
- Timing functions
  - Heartbeat clock (TTL, 50Ω): Programmable Periodic, <1 Hz to 250 kHz
  - Time strobe (TTL, 50Ω): Programmable 1 µSec through hours
  - Event capture (TTL, 50Ω): 100 nSec resolution, zero latency
  - 1 PPS pulse rate (TTL, 50Ω): Positive edge on-time
- Disciplined oscillator
  - Frequency: 10 MHz
  - Outputs: 1, 5, or 10 MHz (selectable)
  - Rate stability
    - Standard VCXO: 5.0E-8 short term 'tracking' 5.0E-7/day long term 'flywheeling'
    - Optional oven osc: 2.0E-9 short term 'tracking' 5.0E-8/day long term 'flywheeling'
  - Sync sources: GPS, Time Code, 1 PPS, 10 MHz
- PCI local bus™
  - Specification: CompactPCI Specification PICMG 2.0 R2.1 Specification 2.2
  - Size: Single-width 3U (3.94" x 6.3")
  - Device type: PCI Target, 32 bit, 5V signalling
  - Data transfer: Byte, Half Word, Word
  - Interrupt levels: Automatically Assigned (PnP)
  - Power:

    bc635CPCI
    +5v @ 380mA
    +12v @ 50mA
    -12v @ 42mA

    bc635CPCI + OCXO
    +5v @ 380mA
    +12v @ 96mA
    -12v @ 42mA

    bc637CPCI (with antenna)
    +5v @ 380mA
    +12v @ 300mA
    -12v @ 42mA

    bc637CPCI (with antenna) + OCXO
    +5v @ 380mA
    +12v @ 340mA
    -12v @ 42mA
- GPS subsystem (bc637PCI only)
  - Time accuracy: <1 µSecond
  - Position accuracy: 10 to 20 meters SEP (SA off)
  - Maximum velocity: 300 meters/sec (1,080 KPH)
  - Number of channels: 8
  - Receiver frequency: 1.575 GHz (L1, C/A code)
  - Time to first fix: Worst case: 5 to 15 minutes
  - Solution modes: 1, 3, and 4 satellites
- Connector types
  - J1 - Module I/O: 15-pin 'DS'
  - J2 - GPS interface: 15-pin high-density 'DP'

ENVIRONMENTAL SPECIFICATIONS

	Module	Ant/Rcvr
• Temperature		
Operating:	0ºC to 70ºC	-40ºC to 70ºC
Storage:	-30ºC to 85ºC	-55ºC to 85ºC
Humidity		
Operating:	5% to 95%* *non-condensing	95%
Operating altitude:	Up to 18,000 meters MSL	

OPTIONS

- Extended length GPS antenna cable
- Isolation transformer time code input
- Ovenized crystal oscillator
- 'D' connector (J1) to BNC adapter
- Drivers: Windows NT/2000/XP, Linux, Solaris, VxWorks
  Contact factory for additional driver support

ORDERING INFORMATION

• BC12063-1000	bc635CPCI Time & Frequency Processor
• BC12063-2000	bc637CPCI GPS Time & Frequency Processor (includes GPS antenna/receiver & 50' (15 m) cable)
• BC11736-2000	Ovenized oscillator option (factory installed)
• BC11576-1000	'D' to BNC adapter (provides IRIG in, IRIG out, 1 pps out, event in, periodic out)
• BC11576-9860115	'D' to BNC adapter (provides IRIG in, IRIG out, 1 pps out, 1 pps in, event in)
• PCI-BNC-CCS	'D' to BNC adapter (provides IRIG in, IRIG out, 1 pps out, 1 pps in, event in, DCLS out)

Symmetricom

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PXI™

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