Symmetricom

bc620/627AT

PC Time & Frequency Processor

KEY FEATURES

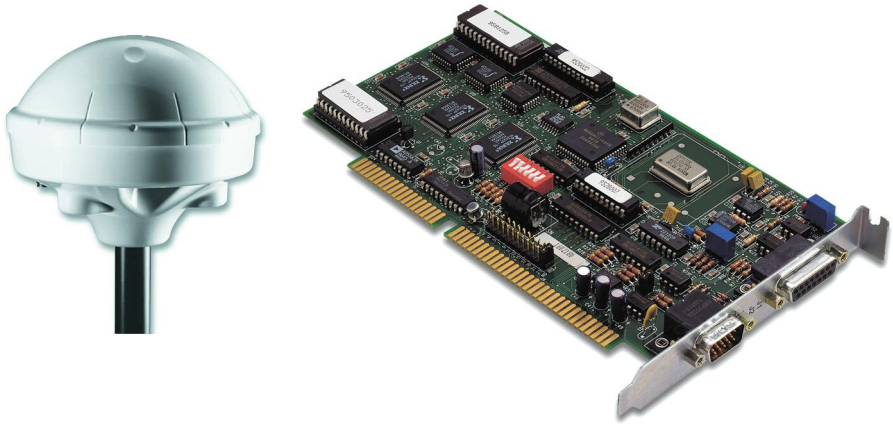
- PC, XT or AT Bus Operation (ISA/EISA Compatible)
- GPS or Time Code Inputs
- Time Code Output
- Pulse Rate Outputs
- Frequency Outputs (1, 5, or 10 MHz)
- External Event Capture/Interrupt
- Programmable Periodic Output/Interrupt
- Programmable Time Strobe Output/Interrupt
- Supplied with FREE Windows Driver
- Battery Backed Clock

Symmetricom's bc620/627AT time and frequency processor modules provide precision time and frequency reference to the host computer and peripheral data acquisition systems. Time is acquired from either the GPS satellites using a supplied antenna/receiver (bc627AT only) or from time code signals, typically IRIG B. Integration of the module is facilitated with a driver for MS DOS that is included at no cost. Optional software development kits are available for Windows® 95/98, Windows NT and Windows 2000.

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 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 the time source is lost, the module will continue to maintain time (flywheel). If power is lost, a 10 PPM battery backed clock is available to maintain time.

Both time code generation and translation are supported. The generator supplies IRIG B time code output synchronized to the input time source. The translator decodes either IRIG B, 2137, XR3 or NASA 36 time code inputs.

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 interrupt as well as to generate a single time strobe at a predetermined time.



PC Time & Frequency Processor (shown with optional antenna/receiver, bc627AT)

bc620/627AT 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 B, NASA 36 (modulated or DCLS)
    XR3, 2137 (modulated only)
  - Modulation ratio: 3:1 to 6:1
  - Input amplitude: 500 mV to 5 V P-P
  - Input impedance: >10KΩ (AC coupled)
  - Carrier frequency: ±50 PPM (max)
- Time code generator
  - Time code format: IRIG B
  - Modulation ratio: 3:1
  - Output amplitude: 1 V to 10 V P-P (adjustable) into 50Ω
  - DC level shift: TTL/CMOS
- Timing functions
  - Heartbeat (TTL, 50Ω): Programmable periodic
    2.3 mHz to 2.5 MHz
    (adjustable pulse width)
  - Time strobe (TTL, 50Ω): Programmable, 1 mS through
    hours (1 mS pulse width)
  - 1 PPS output (TTL, 50Ω): 200 mS pulse width
  - Event capture input: 100 nS resolution, zero latency
    (20 nS min pulse width; 250 nS min period)
- Disciplined oscillator
  - Frequency: 10 MHz
  - Outputs: 1, 5, or 10 MHz (selectable)
  - Rate accuracy:
    - Standard VCXO: 5.0E-8 short term (tracking)
      5.0E-7/day long term (flywheeling)
    - Optional oven oscillator: 2.0E-9 short term (tracking)
      5.0E-8/day long term (flywheeling)
  - Sync sources: GPS, Time Code, 1 PPS
- External time base frequency input
  - 10 MHz square wave: TTL (45-55% duty cycle)
  - 10 MHz sine wave: 0.5 to 4.0 V P-P
- AT bus
  - Address space: 1 Block of 16 Bytes in the PC I/O Map Range
    100H-3FFH
  - Data transfer: 8-bit
  - Interrupt levels: IRQ 3-7, 9-12, 14-15
    (jumper selected)
  - Power: +5 VDC @ 450 mA
    +12 VDC @ 55 mA (bc620AT)
    +12 VDC @ 250 mA (bc627AT)
    -12 VDC @ 20 mA
- GPS subsystem (bc627AT only)
  - Time accuracy: <±2 microseconds
  - 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: Brief power off: 1.5 min (1-4 SV)
    Worst case: 5 to 15 min
  - Solution modes: 1,3, and 4 satellites
- Environment

	Module	Antenna/Receiver
Operating temperature:	0°C to 70°C	-30°C to + 70°C
Storage temperature:	-50°C to 100°C	-55°C to +100°C
Humidity		
Operating:	5% to 95%*	95%
	*non-condensing	

- Connector types
  - J1 - module I/O signals: 15-pin 'DS'
  - J2 - GPS Interface: 15-pin high-density 'DP' (bc627AT)
- Software support
  - "C" demo program: Free, supplied on CD
  - Windows driver: Free, supplied on CD

OPTIONS

- Antenna cable extender module
- Isolation transformer time code input
- Ovenized crystal oscillator
- 'D' connector (J1) to BNC adapter
- WINSDK for Windows 95/98/NT/2000

ORDERING INFORMATION

• bc620AT	ATbus Time & Frequency Processor
• bc627AT	ATbus GPS Time & Frequency Processor*
• 620-WINSDK	WIndows Software Developer's Kit
• OVEN	Ovenized oscillator option (factory installed)
• BNC	'D' to BNC adapter (provides IRIG in, IRIG out, 1 pps out, event in, periodic out)
• GPS-ACU2K	Spare antenna
• 812597-050	Spare RS422 50' (15 m) antenna cable**
• 812597-100	Spare RS422 100' (30 m) antenna cable**
• 812597-200	Spare RS422 200' (60 m) antenna cable**

* includes GPS antenna/receiver & 50' (15m) cable

** contact factory regarding longer cabling requirements

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