Timecode Reader/Generator
Model TPRO-PMC

- IRIG-A, IRIG-B, NASA36 timecode reader
- IRIG-B timecode generator
- Time-Tag input
- Freewheel capability
- Programmable periodic output (pulse/squarewave) and interrupt capability
- Programmable start/stop time output and interrupt capability
- High-performance, 2.5 ppm oscillator

The TPRO-PMC provides high-accuracy timing functions on a plug-in board with a PMC interface. The board’s on-board clock is kept in sync to an external timecode input. Several timing functions are derived from the onboard clock, including a programmable periodic pulse rate output (“heartbeat”), a programmable start/stop output (“match”), a selectable frequency output (“oscillator out” at 1 kHz, 1, 5, or 10 MHz), and a time-stamping input (“time-tag”).

The TPRO-PMC obtains time from an input timecode, which can be IRIG-B or IRIG-A format. The board detects the format that is being used automatically. An AGC circuit on the time code input accommodates a wide range of input amplitudes.

The timecode conveys the day, hour, minute, and second. The on-board 10 MHz oscillator is disciplined to the time code input carrier frequency. The board provides an IRIG-B timecode that is in-sync with the incoming timecode output.

The TPRO-PMC can be used as a stand-alone timecode generator. The computer programs the day, hour, minute, and second. The board then continues to count from that time, using the on-board oscillator as the timebase reference. This is called “freewheeling.”
Specifications

Timecode Input
- **Code Format (Autodetect):** IRIG-A (A132), IRIG-B (B122), NASA36
- **Amplitude:** 1.2 Vp-p min, 8.0 Vp-p max
- **Polarity:** Detected automatically
- **Modulation Ratio:** 2:1 min, 3:1 typ, 4:1 max
- **Input Impedance:** >10K Ohms
- **Input Time Accuracy:** Better than 25 ppm (not suitable for tape playback)
- **Common Mode Voltage:** Differential input, ±100 V max

Timecode Output
- **Code Format:** IRIG-B (B122)
- **Amplitude (Adjustable):** 4.9 Vp-p typical (0 V–20 Vp-p) into >= 600 Ohm load
- **Modulation Ratio (Adjustable):** 3:1
- **Output Impedance:** 50 Ohms

On-Board Clock
- **Resolution:** 1 μS
- **Range:** 366:23:59:59:999999
- **Propagation Delay Correction:** –999 μS through +999 μS (1 μS resolution)
- **Stability:** Disciplined to timecode: 2 x 10⁻⁷
  Undisciplined: 1 x 10⁻⁶
- **Accuracy:**
  - IRIG-A time code input: 10 μS max
  - IRIG-B, NASA36 time code input: 15 μS max

Oscillator Output
- **Frequency:** 1 kHz, 1 MHz, 5 MHz, 10 MHz or Off (software selectable)
- **Type:** RS-422
- **Differential Output Voltage:** 2.5 Vp-p (1 MHz)
  1.8 Vp-p (10 MHz) into 120 Ohms
- **Timebase Accuracy:** Same as on-board clock

Time-Tag Input
- **Input Voltage:** –0.1 V min, +0.4 V max for logic 0
  +2.2 V min, +5.1 V max for logic 1
  Tags rising edge
- **Input Current:** –600 μA for logic 0
  100 μA for logic 1
- **Rise/Fall Time:** 150 nS max
- **Repetition Rate:** 2000 events per second maximum
- **Timing Resolution:** 1 μS

Heartbeat Output
- **Output Voltage:**
  - High: 2.4 V min at 2.5 mA
  - Low: 0.4 V max at –2.5 mA
- **Wave Shape:** Pulse
- **Pulse Width:** 100 nS min, 330 nS, 1 μS, 1 mS
- **Pulse Polarity:** Software selectability
- **Range:** 200 nS to 65.5 seconds
- **Power-on Default Rate:** Off

Match Output
- **Output Voltage:**
  - High: 3.8 V min at 6 mA
  - Low: 0.3 V max at –6 mA
- **Settability:** 1 μS

In-Sync Flag Output
- **Type:**
  - Open Collector
  - External Pullup
- **Voltage:** +27 VDC max
- **Current:** –20 mA max
- **Polarity:** Conducts to ground when board is synced to GPS or timecode.

Bus Interface
- **PCI Local Bus:**
  - 2.3 compliant
  - PCI-X compatible

General
- **Size:** (H) 74 mm x (L) 149 mm (2.91” x 5.87”)
- **Power (from PCI bus):**
  - +5 Vdc @ 425 mA max
  - +12 Vdc @ 225 mA max
  - –12 Vdc @ 50 mA max
- **Operating Temperature:** 5º to +50º C (41º to +122º F)
- **Storage Temperature:** –40º to +85º C (–40º to +185º F)
- **Connectors:** Micro-D25

Drivers
Major operating systems are supported.

Ordering Information
Model TPRO-PMC