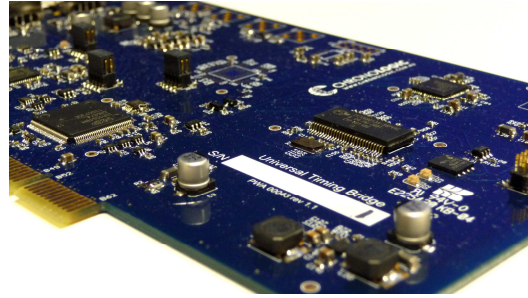


## ChronoLogic CL3000 – Universal Timing Bridge

- Cross-Platform Synchronization PCI Card
- Synchronize USB-inSync™ & IEEE-1588 in one system
- Highly accurate onboard clock source
- 2 USB ports
- 1 Ethernet Port (IEEE-1588 Support)
- Support for IRIG & GPS time codes (via free software upgrade shortly after initial release)



### Overview

The ChronoLogic CL3000 – Universal Timing Bridge is the first in a series of cross-platform synchronization devices, enabling ground-breaking inter-operability and synchronization between different instrumentation platforms. The CL3000 is a PCI card that synchronizes ChronoLogic's USB-inSync™ platform with IEEE-1588 (Ethernet).

The CL3000 uses one common clock to produce IEEE-1588 and USB-inSync™. This clock is also directly available as a reference for external devices via an output SMB connector, and can act as a 1588 Grand Master or as a highly accurate master clock for an entire instrumentation system.

Future software development of the CL3000 will enable additional functionality including the ability to synchronize systems that use the IRIG (Inter Range Instrumentation Group) timing protocol. Therefore it will enable hybrid systems that use USB-inSync™, IEEE-15888 and IRIG to be synchronized and controlled as a single system in an accurate and deterministic manner.

The CL3000 will initially be available in multiple configurations with differing clock accuracy. For preliminary specifications see the section below.

### Preliminary Specifications (subject to change)

#### Model Number & Configuration

Features	CL3010	CL3011	CL3015	CL3016
<b>Onboard Clock Source</b>	TCXO 3ppm	TCXO 1ppm	OCXO 0.1ppm	OCXO 0.03ppm
<b>USB (host)</b>	2 USB-A ports	2 USB-A ports	2 USB-A ports	2 USB-A ports
<b>Measure USB cable propagation delay</b>	Yes	Yes	Yes	Yes
<b>Ethernet 10/100 BaseT</b>	1 RJ-45 port	1 RJ-45 port	1 RJ-45 port	1 RJ-45 port
<b>IEEE-1588 v1</b>	Yes	Yes	Yes	Yes

#### Synchronization Accuracy

- USB-inSync  $\pm 1\text{ns}$
- IEEE-1588 3m Direct Connection  $\pm 50\text{ns}$
- IEEE-1588 via hub (limited by hub) typ  $\pm 210\text{ns}$
- IEEE-1588 via switch (limited by switch) typ  $\pm 25\mu\text{s}$

#### USB

- Extra ESD Protection Yes
- USB Ports 2
- Supported USB Protocols 2.0
- USB delay measurement resolution 100ps

**Ethernet**

- Ethernet Ports 1
- Speed 10/100Mbps
- Connector RJ-45
- Supported IEEE-1588 v1

**TCXO Characteristics**

- Frequency 10MHz
- Initial accuracy  $\pm 3\text{ppm}$  or  $\pm 1\text{ppm}$
- Temp stability (0 to 55°C)  $\pm 3\text{ppm}$  or  $\pm 1\text{ppm}$
- Aging per year  $\pm 3\text{ppm}$  or  $\pm 1\text{ppm}$

**OCXO Characteristics**

- Frequency 10MHz
- Initial accuracy  $\pm 0.1\text{ppm}$  or  $\pm 0.03\text{ppm}$
- Temp stability (0 to 55°C)  $\pm 0.1\text{ppm}$  or  $\pm 0.03\text{ppm}$
- Aging per year  $\pm 0.1\text{ppm}$  or  $\pm 0.03\text{ppm}$

**Power Requirements**

PCI Rail	Typical	Maximum
+3.3	TBD	TBD
+5	0.1A	2A
+12	Nil	Nil
-12	Nil	Nil