

Time Sync: When did I record that?

Synchronizing the DVR Express® Core with an External Time Source to Improve Timestamp Accuracy on Recorded Video

Overview

When recording video, the DVR Express® Core records a timestamp on each video frame, generated by a free-running clock in the hardware acquisition engine. Each time the control software is launched and the Core is initialized, this timer is set to the PC's system time. From then on, the timestamp timer is subject to clock drift, as is any clock relative to another. Several methods can be used to reduce this drift, however the most effective way is to periodically re-synchronize the timer with an accurate time source.

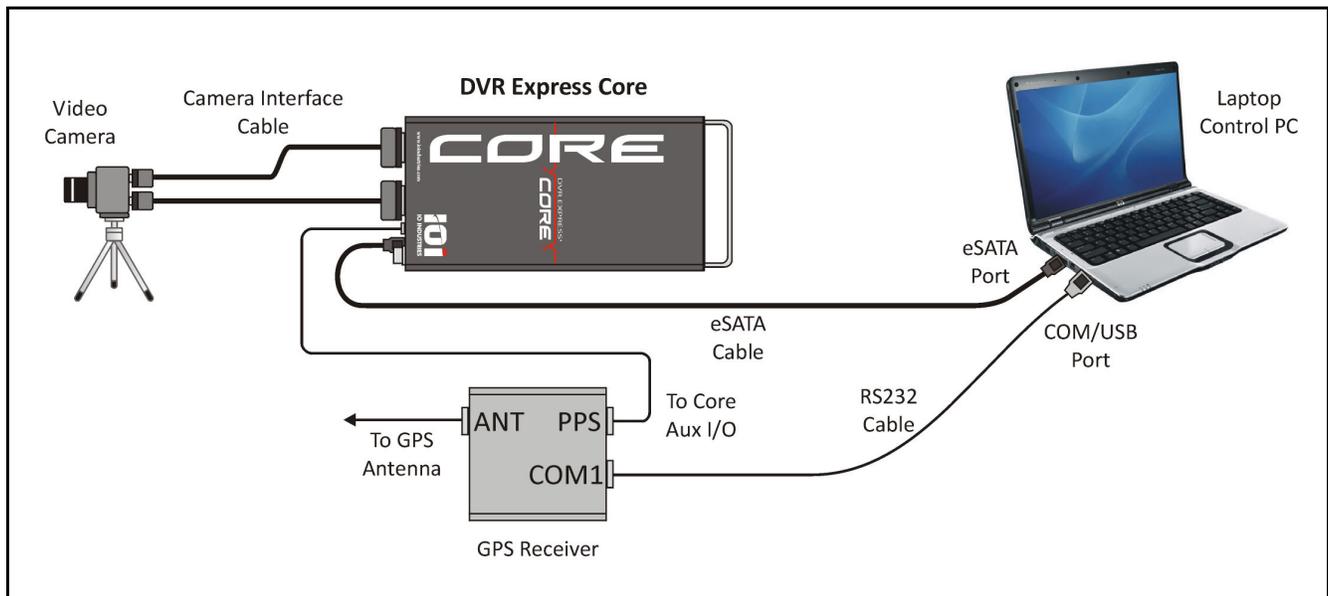


Figure 1: DVR Express® Core Synchronized to External Time Source

External Time Synchronization

The DVR Express® Core's timestamps can be synchronized to an external timing source, such as GPS or IRIG-B. This feature requires a time receiver device that has an output signal associated with the time logs provided to the control PC (normally referred to as PPS - Pulse Per Second). This PPS signal is connected to one of the general purpose TTL or LVDS inputs of the DVR Express® Core, and the data interface of the timing device is connected to the control PC. The timing device could be an external device which communicates over RS-232, or a PC card with a PCI or PCI Express interface.

How it works

Every second, a PPS signal is received by the DVR Express® Core. At the same time, a time log associated with that signal is transmitted to the control PC. The control PC transmits that time log to the DVR Express® Core in the format required by the timestamp clock. The DVR Express® Core receives that new time, compensates for the delay in receiving it, and sets the timestamp clock to that new time.

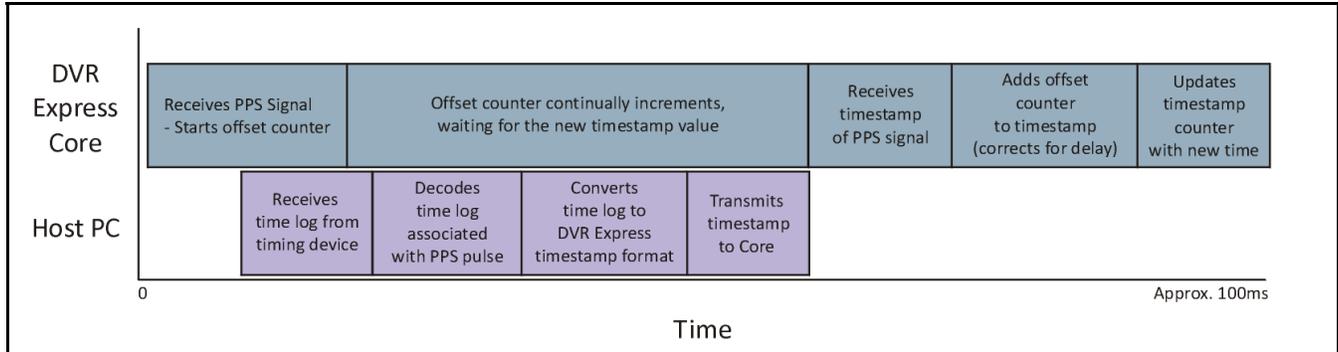


Figure 2: External Time Resynchronization Process

Supported Devices

The following table shows some of the supported devices for the External Time Resynchronization feature of the DVR Express® Core. Contact IO Industries for a complete list.

Manufacturer	Model	Input Time Format	PC Interface
Meinberg	TCR167PCI	IRIG-A, IRIG-B	32-bit PCI
Meinberg	GPS170PCI	GPS	32-bit PCI
Orca	GS-101	IRIG-B, GPS	RS-232, USB
Trimble	AG 132	GPS	RS-232

Established in 1991, IO Industries Inc. designs Digital Video Recording (DVR) systems for applications in manufacturing, research, broadcast and entertainment.. IO Industries offers both PC-based and standalone embedded DVR systems.

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