



## J.F. Taylor, Inc.

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**Certified to ISO 9001:2000**

Founded in 1983, J.F. Taylor, Inc.'s roots are in the RDT&E of military aircraft systems. This background provides us with relevant aircraft experience that we apply directly to the trainer systems we are developing today. We have been building simulation and trainer systems since 1987, and in the last five years have produced complex trainers and trainer components for the USN and USMC.

Current and past trainer projects include the AH-1W APT, SH-60B TOFT, MH-60S TOFT, KC-130T APT, KC-130 Visual Upgrade, and VH-60N and VH-3D APT. J.F. Taylor, Inc. is a TSC II prime contractor for the USN.

With our experienced engineers and manufacturing facility we specialize in:

### Full Flight Simulators & Components

Panel Design & Fabrication  
Visual Database Development  
High Fidelity Cockpits & Crewstations  
Avionics Model Development  
Instructor/Operator Stations  
Trainer Device Integration

### Military Systems RDT&E

Instrumentation Development  
Test Set Development  
Test Planning  
Data Analysis  
Avionics Stimulation

**Custom signal buffer circuit  
used within DBF II.**

## Instrumentation

J.F. Taylor, Inc. has developed and fielded Discrete Bus Formatter (DBF) II airborne instrumentation systems to support in-flight data collection for many avionics flight test programs. These rugged instrumentation packages collect, time-tag, and store in-flight avionics data used to support post flight analysis of avionics operation, performance, integration, and overall specification compliance. To date, these instrumentation systems have supported in-flight data collection for the following platforms:

- C-2A
- MH-53E
- KC-130T
- S-3B
- VP-3
- F-18C/D
- MH-60R
- F-18E/F
- NVH-3A



### Data Interfaces

Interfaces supported by the DBF II instrumentation system include:

- MIL-STD-1553B
- ARINC-429 Data Busses
- ARINC-407 Synchro (Pitch, Roll, Heading)
- RS-422 Serial up to 1 MBaud
- RS-232 Serial up to 110 KBaud
- PCM encoded serial up to 8 MBps (per IRIG 106)
- Differentially correctable GPS position data
- Pulsed signals (with microsecond timing)

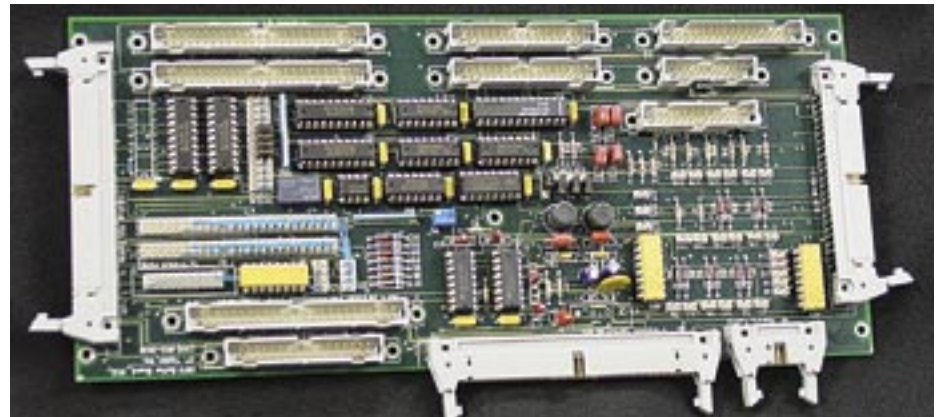


Custom interface support is also available.

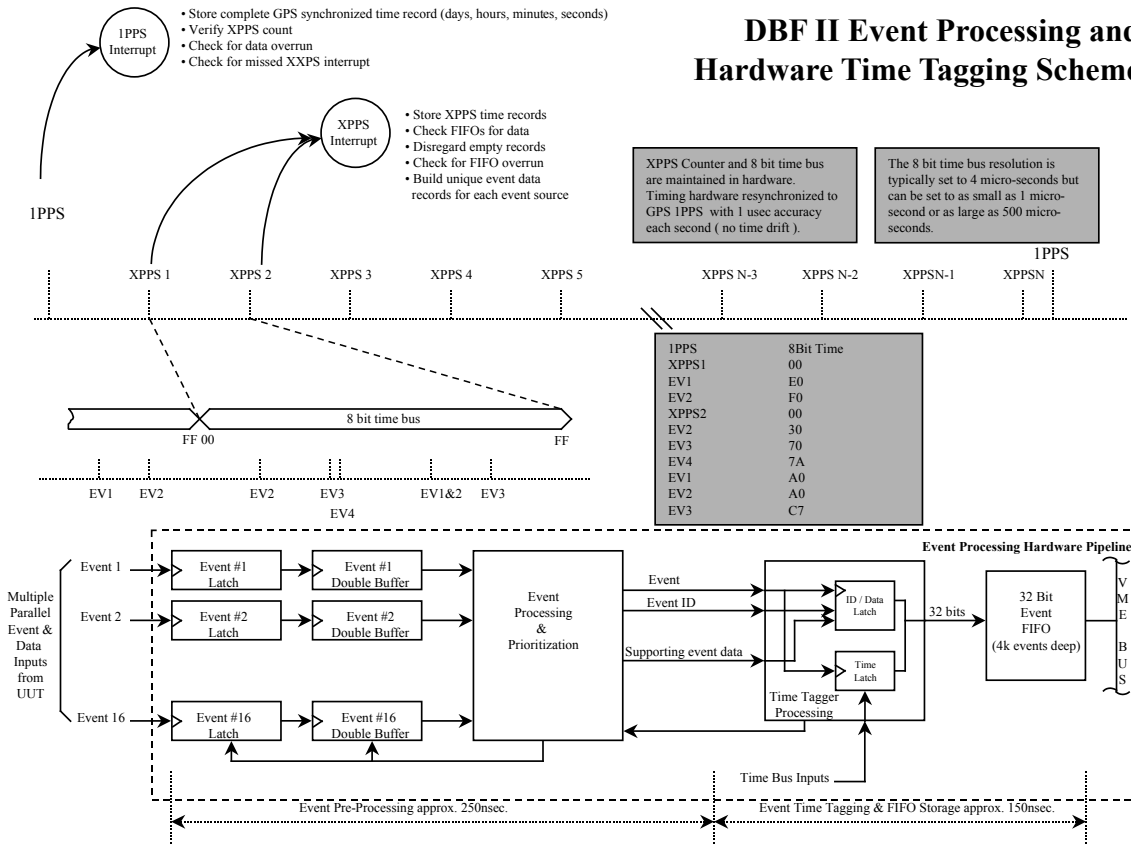
### Time Synchronization

Time Tags for all captured data are derived and synchronized to GPS time.

- Negligible time drift
- $\pm 1 \mu\text{sec.}$  accuracy
- User selectable resolution
- Allows for platform-to-platform data event correlation



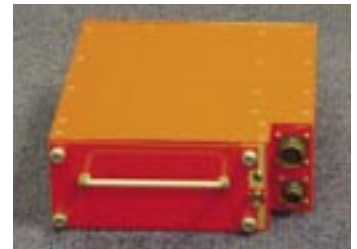
# DBF II Event Processing and Hardware Time Tagging Scheme



The diagram above shows how  $\mu$ sec. time tagging of pulsed "Event" signals is achieved using our hardware design. Time tag latencies of less than 500 nsecond are achieved.

## Storage Media

Data collected by the DBF II instrumentation systems is stored on ruggedized SCSI hard disks. Drive cartridges are easily removed from the instrumented platform for post flight data download and analysis. Drives up to 18 GBytes are currently supported.



## Instrumentation Component Specifications

Parameter	Condition	DBF II Specifications	DBF II Mass Storage Specifications
Altitude (feet)	Operating	-1,000 to +40,000	-1,000 to +40,000
	Non-Operating	-1,000 to +50,000	-1,000 to +50,000
Temperature	Operating	-40°C to +50°C	-40°C to +50°C
	Non-Operating	-40°C to +65°C	-40°C to +60°C
Humidity (NC)	Operating	5% to 95%	5% to 100%
	Non-Operating	5% to 95%	5% to 100%
Shock	Operating	20 g's @11ms ½ sine wave	10 g's @11ms ½ sine wave
	Non-Operating	30 g's @11ms ½ sine wave	30 g's @11ms ½ sine wave
Vibration	Operating	4.0 g's @15 to 1000Hz	3.0 g's @15 to 1000Hz
	Non-Operating	5.0 g's @15 to 1000Hz	4.5 g's @15 to 1000Hz
Size (W x H x L in inches)		10.12 x 7.62 x 12.62	9.50 x 3.75 x 12.3
Weight (pounds)		22.0	14.5