

TuffServ™ 40 Compact Airborne Recorder

Features

- Ruggedized Recorder and File Server
- Gigabit Ethernet Interface
- TuffServ™ Recorder Application
- NFS, CIFS/SMB Network File Systems
- FTP and iSCSI Servers
- Web Interface for Administration and Control
- Conduction-cooled Flight-rated Enclosure
- Compact: 40 Cubic Inches / 650cm³
- Lightweight: Less than 2lbs
- Low Power: 10W (TBR)



Compact, Cost Effective Performance

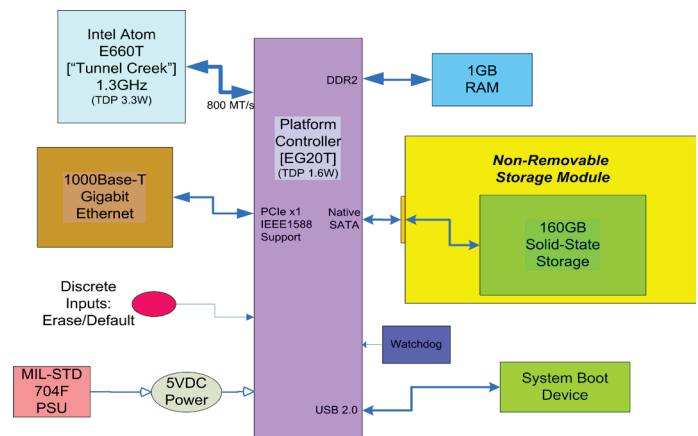
The TuffServ™ 40 (TS 40) airborne server is the most compact, lightest and least power-hungry member of the TuffServ family. Specifically designed for demanding applications such as tactical Unmanned Aerial Systems where space and payload weight are at a premium, the TS 40 leverages the Intel® Atom™ CPU technology to provide cost-effective performance with minimal power consumption. Packaged as a rugged, general purpose computing platform for airborne and mobile applications, it functions as a ruggedized computer, a file server, or as a recorder using the TuffServ recorder application. It can also be configured as a network-attached block-storage device using the iSCSI protocol.

Typical Applications

- **Embedded Storage Appliance**
- **Network Storage and Processing for Networked Systems**
- **Airborne and Mobile Data Collection**
- **Flight, Sensor and Vehicle Testing**
- **Video, Radar, EO and IR Data Storage**

Using a non-removable solid-state storage module, the TS 40 provides up to 160GB of memory. The standard system is delivered with a Linux system based on the 2.6 kernel. This provides a wide range of network services out of the box, including NFS and Samba for Windows SMB/CIFS networks, FTP and iSCSI. As a completely open system, based on the industry standard Intel architecture, there is a wealth of additional open source or commercial software which may be installed and deployed, including databases, multimedia packages and management tools. The system can be controlled and administered with a web browser or a terminal emulator and a traditional command line interface.

The TuffServ recorder application includes both a mode for recording generic TCP or UDP streams over Ethernet, and a mode optimized for recording and replaying video data encapsulated in MPEG-2 Transport Stream packets. This application can be used concurrently with file serving or other network access. The unit's on-board clock can be synchronized to external time sources by IEEE 1588/PTP; the Ethernet interface includes hardware support for greater accuracy. Alternatively, NTP synchronization can be used. For convenience, two discrete inputs are provided which (when activated) trigger the solid-state storage module erase process and resets the device to default settings, respectively.



Logical Block Diagram

Specifications¹

System

CPU:	Intel Atom E660T, 1.3GHz 512KB L2 Cache
Memory:	1GB PC2-6400 DDR2 800MHz RAM 2GB Dedicated flash boot device
Network Interfaces:	One Gigabit Ethernet (PCIe)
Network Storage:	NFS, CIFS/SMB, FTP
Operating system:	SUSE Linux from Novell (contact Ampex for alternatives)
Configuration:	Browser based administration tool, Linux command line



Performance

Internal Data Rate:	100+ MByte/sec writes (peak), 150+ MByte/sec reads TBR
Network Data Rate:	50 MByte/sec typical with CIFS Ethernet TBR <i>Actual performance will vary with file access protocols and patterns</i>
Storage Capacity:	Fixed SSD Module, capacities of 160 GB or 80GB

Power

Power input:	28VDC per MIL-STD-704F
Power dissipation:	10 W

Connectors

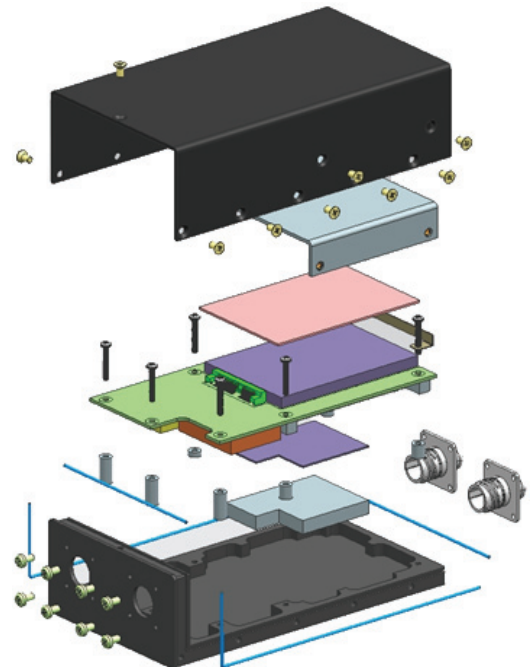
Power:	Glenair Series 805, 10 pin; includes discrete inputs
Network:	Glenair Series 805, 10 pin, key position "B"

Mechanical

Dimensions:	1.8" H x 3.5" W x 6.25" D (6.7" incl. connectors) (46mm x 89mm x 159mm / 170mm)
Mounting:	Base Screw Mounted (6x)
Weight (System):	1.4 lbs (640g) – with 160GB Module

Environmental

Temperature:	Operating – standard:	-40° C to +71° C
	Non operating:	-50° C to +85° C
Humidity:	0% to 100% RH	
Operational Vibration:	TBD g _{rms}	
Operational Shock:	20 g, half sine, 11ms	
EMI Compatibility:	MIL-STD-461E	



¹ Specifications subject to change without notice

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