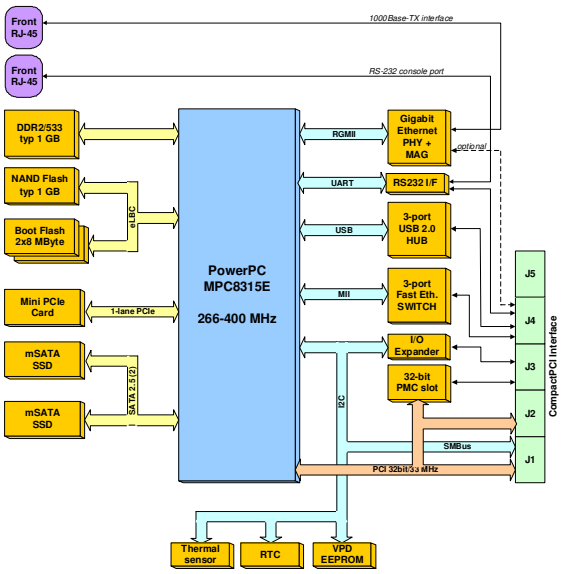
DATA LOGGER APPLICATION GUIDE

Introduction

For application requiring enhanced data capture capabilities, the CSBX-6315 data recorder board offers a very flexible platform open for a large range of applications by offering a high level of customization. This customization flexibility is accomplished through the versatile peripheral interfaces available and the software support written for the CSBX-6315 platform.

CSBX-6315 Data Recorder

The CSBX-6315 is based on the industry-standard CompactPCI 6U form factor, and offers the full system-slot capabilities with many on-board peripheral interfaces including:



- One Gigabit Ethernet interface
- 3-port Fast Ethernet manageable switch
- 3-port USB2.0 Hub
- I2C serial bus interface
- Two SSD extension slot
- One mini PCI Express mezzanine slot
- One PMC extension slot
- 32-bit System-slot CompactPCI interface

The CSBX-6315 features a very low power consumption level with a typical 5 W range with Linux applications running over network and storage activities.



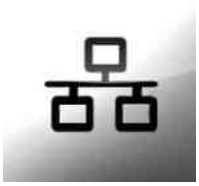

KEY FEATURES

The CSBX-6315 embedded peripherals are based on the latest technology devices and offer high performance and a reliability level for critical mission application.

Solid State Disk

Two Solid State Disk (SSD) extensions are available for large volume storage. Based on the Serial ATA interface, the SSD media offers a safe and robust solution for critical data capture with RAID 0,1 support.

Fast Ethernet manageable Switch

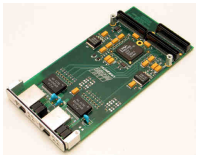


A 3-port Fast Ethernet switch is available for redundant multiple network and redundant architecture. This configuration ensures high system availability over network in any condition.

USB2.0 Hub

A 3-port USB2.0 is present for external acquisition or removable storage media support.

Mini PCI Express and PMC mezzanines



One mini PCI Express and one PMC mezzanine extension slots are available for system customization by supporting high performance add-on peripherals like wireless network controller, GPS, analog acquisition module, serial communication controller, car and avionics networks (CAN Bus, MIL-STD-1553, ARINC), etc.

CompactPCI interface

The 32-bit CompactPCI interface allows interconnection with additional peripheral boards providing enhanced functions dedicated to the application.

PowerPC Architecture

Based on the PowerPC architecture, the CSBX-6315 data recorder offers very low power dissipation for embedded application running without forced air cooling. Extended operating temperature is available for critical applications.

Rear I/O connections

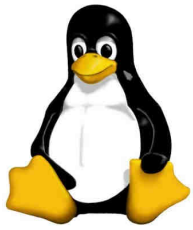
The CSBX-6315 solution offers a real advantage for system maintenance since all peripheral I/O signals are available to the rear I/O interconnection. The subsystem replacement is executed by simply replacing the defective unit without removing any cable and connectors.




SOFTWARE SUPPORT

ACTIS Computer standard software support is based on open-source solutions widely adopted by the industry. These solutions are based on U-Boot universal bootloader and Linux Kernel release 3+.

U-Boot bootloader



U-Boot is an open source boot loader which initializes the hardware devices of a system, executes some basic commands and is able to start (boot) an Operating System. It is developed by DENX Computer Systems GmbH.

Linux Kernel 3+

The CSBX-6315 integrates the latest Linux development by supporting the kernel 3+ release.
The kernel is based on an optimized version for PowerPC architecture

File System

A complete Linux configuration including kernel, FDT, File System can be embedded into local Flash devices. This typical configuration is useful for an embedded and standalone application requiring a fast system power-up and a highly secured environment for critical mission application.
For more complex application, a typical Debian 6 file system (FS) is available with a complete set of shell commands. This FS is user customizable and support online update through pre-installed advanced packaging tool.

Main Features

- Linux kernel 3+ release supported
- Support network and drive attached file system.
- Tiny Embedded (BusyBox) and typcal Debian 6 file system supported
- Customizable Kernel configuration for power up time optimization
- Customizable File System for size optimization
- Flat Device Tree (FDT) resources interface supported
- Enhanced hardware driver support
- Development tool chain based on Eclipse available

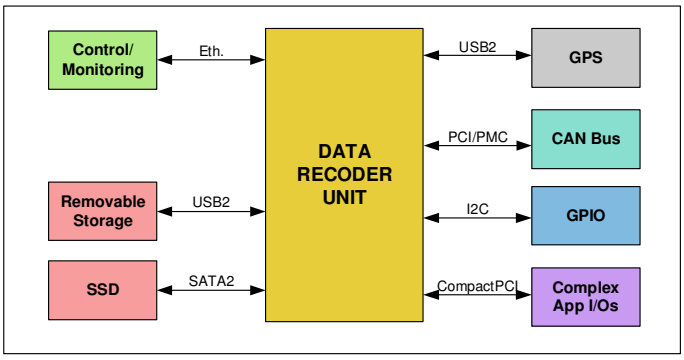



Application Examples

Due to its customization capabilities, the CSBX-6315 data recorder platform is open to large range of application requiring secure and efficient data capture operation with limited power dissipation.

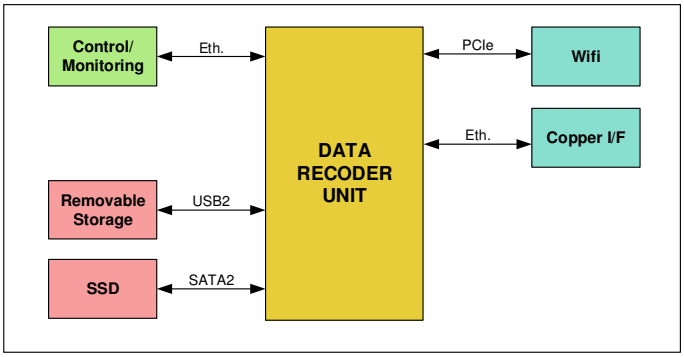
The following examples demonstrate various applications

In-Vehicle Data Recorder



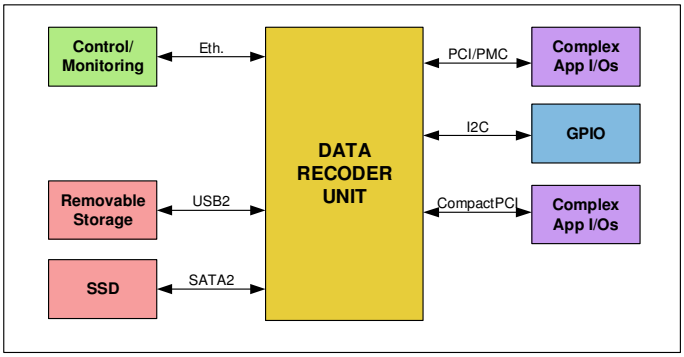
- Complex Analogue & Digital acquisition
- CAN Vehicle network support
- Local capture conversion and filtering
- Secure SSD storage
- Removable USB storage
- Embedded web server for monitoring and control

Network Packet Analyzer



- Enhanced Network packet capture
- Copper and wireless interfaces supported
- Local capture filtering
- Secure SSD storage
- Removable USB storage
- Embedded web server for monitoring and control

Acquisition and Monitoring System



- Complex Analogue & Digital acquisition
- Local monitoring
- Local capture conversion and filtering
- Secure SSD storage
- Removable USB storage
- Embedded web server for monitoring and control

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