ECAM-DVR1
Digital Video Recorder, 1-Port

The 1-Port Digital Video Recorder (DVR1) provides command sequencing, image processing, compression, and storage. Each DVR1 supports any one of the ECAM family of cameras, and multiple DVR1s may be linked to support additional cameras without requiring additional spacecraft data interfaces.

The spacecraft commands the DVR1 to record snapshots or video from the attached camera at a specified time. The DVR1 then commands the selected camera, pre-processes and compresses the data, and stores the data to an 8 Gigabyte non-volatile memory buffer. A 128 Megabyte volatile buffer supports custom post-processing functions and serves as a redundant back-up to the non-volatile memory.
The DVR1 can play back recorded images and video upon command. Simple command sequences can also be pre-programmed for automatic execution when power is applied, reducing spacecraft overhead and allowing the DVR1 to operate in a stand-alone mode.

The spacecraft data interface may be configured for Spacewire or any custom serial interface definition, synchronous or asynchronous, that utilizes up to eight LVDS signals in each direction.

The DVR1 hardware derives its heritage from the Digital Electronics Assembly (DEA) designed to support the MARDI, MAHLI, and MASTCAM science instruments on the NASA-JPL Mars Science Laboratory rover. All components are hi-reliability and radiation tolerant and the system has undergone a robust qualification program, including thermal-cycle, vibration, shock, thermal-vacuum, and EMC/EMI testing.