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S2 Pulsar Baseband Processing System

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The S2 baseband processing system for pulsars **is** designed for a variety of pulsar measurements such as ultrafast signal fluctuations and pulse timing. Its key features are: the S2 recorder; the efficient mechanism for high data volume, high data rate transfer from S2 tapes to computer/workstation **via** the S2 'tape-to-computer interface'; and the tightly coupled control interface to the computer which enables automated data transfer and processing. Developed originally for Very Long Baseline Interferometry (**VLBI**) applications, the S2 recorder **is** based on the use of **commercial VHS** tape transports (VCR's) modified for use **in** digital high density, high data rate **applications**. A single S2 recorder provides up to 500 GBytes storage and an unattended operating time of up to 8.5 hours at the maximum data rate of 128 Mbits/s (16 MBytes/s) or about 1 **GByte/minute**. For more challenging applications, multiple S2's may be used. In this paper, we present an overview of the S2 baseband processing system. In particular, we discuss plans to direct S2 data into super-computers to maximize throughput of the data-intensive pulsar processing problems, best **served** by super-computing parallel-processing methodologies. We present first scientific results of pulsar recordings of August 1995 and results from more recent investigations.
