

VME Drivers for CSC Tests

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CSC VME Controllers and Drivers

SBS Bit3 PCI-to-VME interface, Models 617 & 618

- CSC Track-Finder prototype tests
- Early FAST site DAQ (CSC chamber test facility)
- More words about this on next slides

Dynatem D360 crate CPU

- Current FAST site VME interface
- Current solution for VME interface to CSC peripheral crates housing front-end electronics and trigger primitives
- Cheap ~\$800
- Uses ethernet interface, no disk, on board memory ~2MB



Bit3 API

SBS API

- We used the MSWindows driver supplied by SBS for the Track-Finder tests (it works with 98, NT, 2000)
- Linux (and other OS) versions also available

VMEHB

- Linux driver developed by NIKHEF/DESY for SBS controllers (models 616-618)
- Used in early FAST site DAQ with fiber optic Bit3 (618)



Experience with SBS API

Here is what we tried on SBS BIT3 (models 617 and 618) using MSWindows driver:

- Single transfer mode
 - 2 microseconds per transfer - actual speed, no gaps

- Block transfer mode:
 - 100 nanoseconds per word, there are gaps, which slow the overall speed down to approximately the same as single transfer mode
 - DMA is used during the block transfer. Block transfer is only possible using DMA (this is the specific feature of this controller and its driver, not PC or anything else)



Interface to Bit3 API

The Bit3 controller is initialized and data transfers are performed using normal C function calls to the supplied DLL library (which in turn calls MS kernel)

These calls were wrapped by us in a C++ class to hide the specific driver calls (and thus the exact controller) from user software

→ UF Version:

- Simple class with limited functionality to make A24/D16 VME transfers

→ Rice Version:

- More extensive class offering general VME access