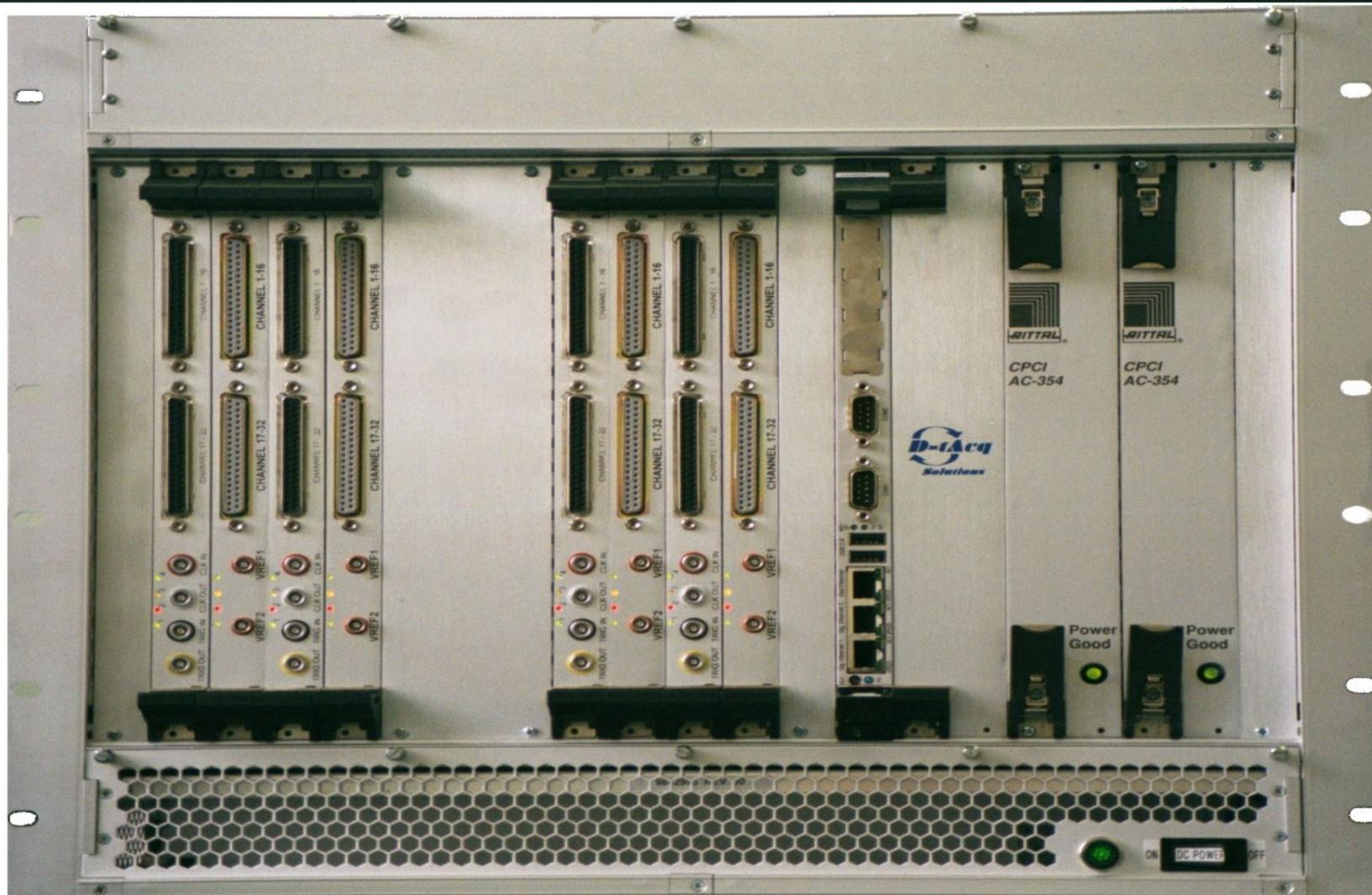
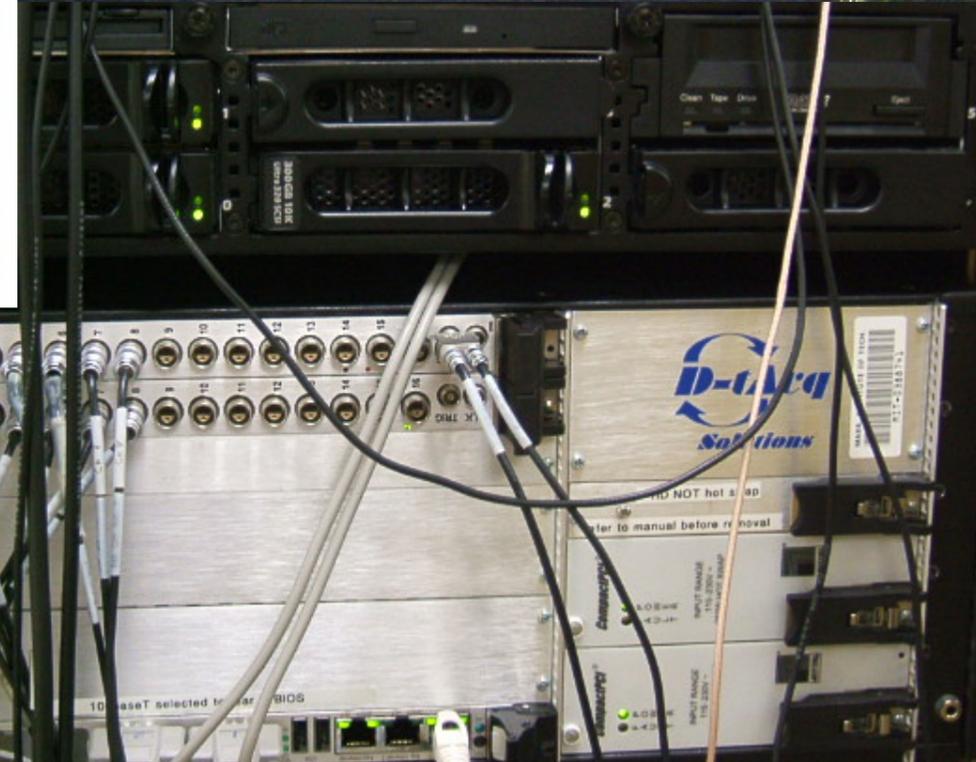
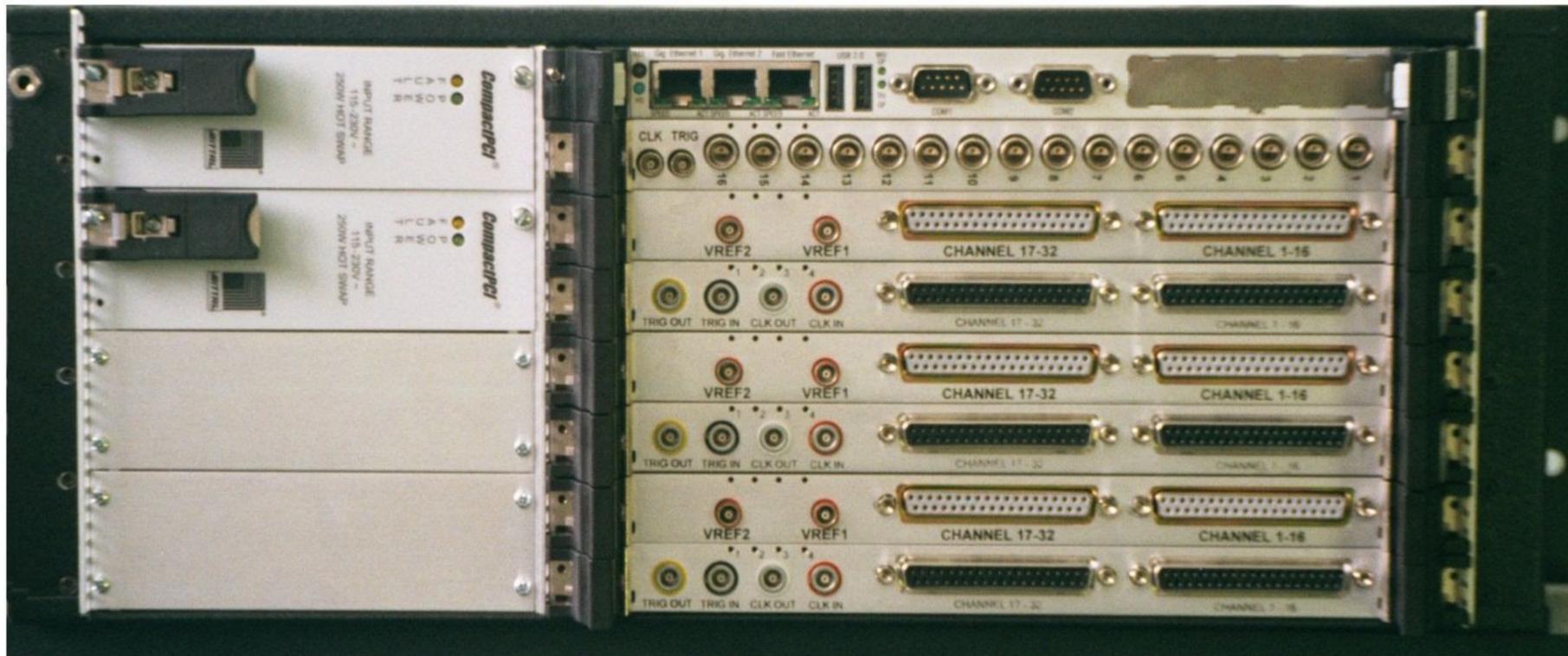
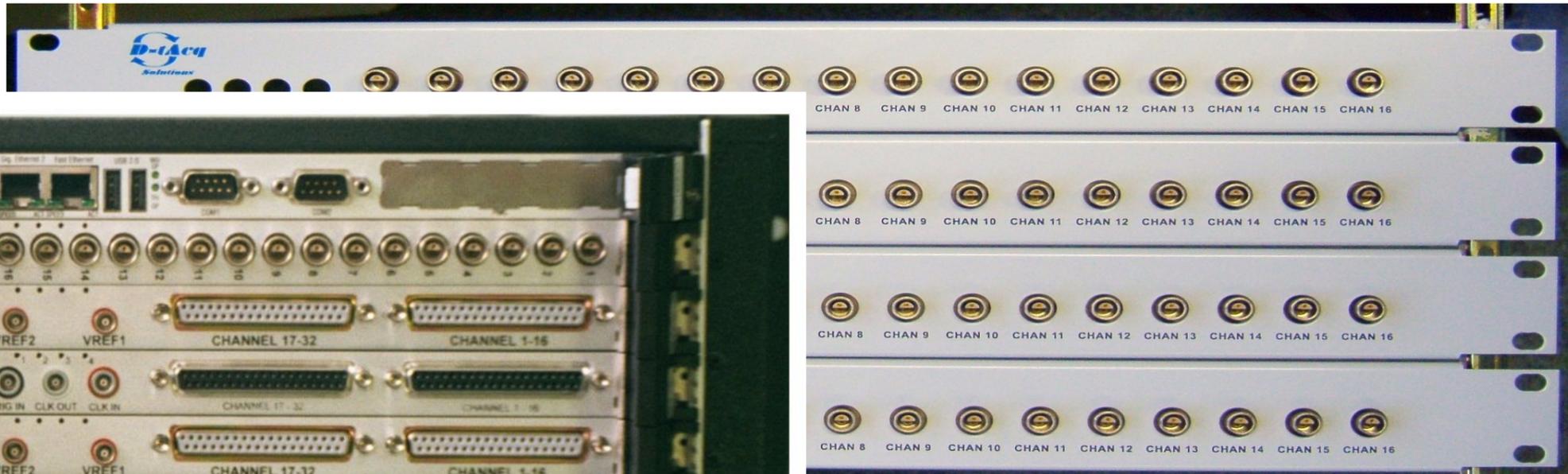




Solutions

High Performance

Simultaneous Data Acquisition



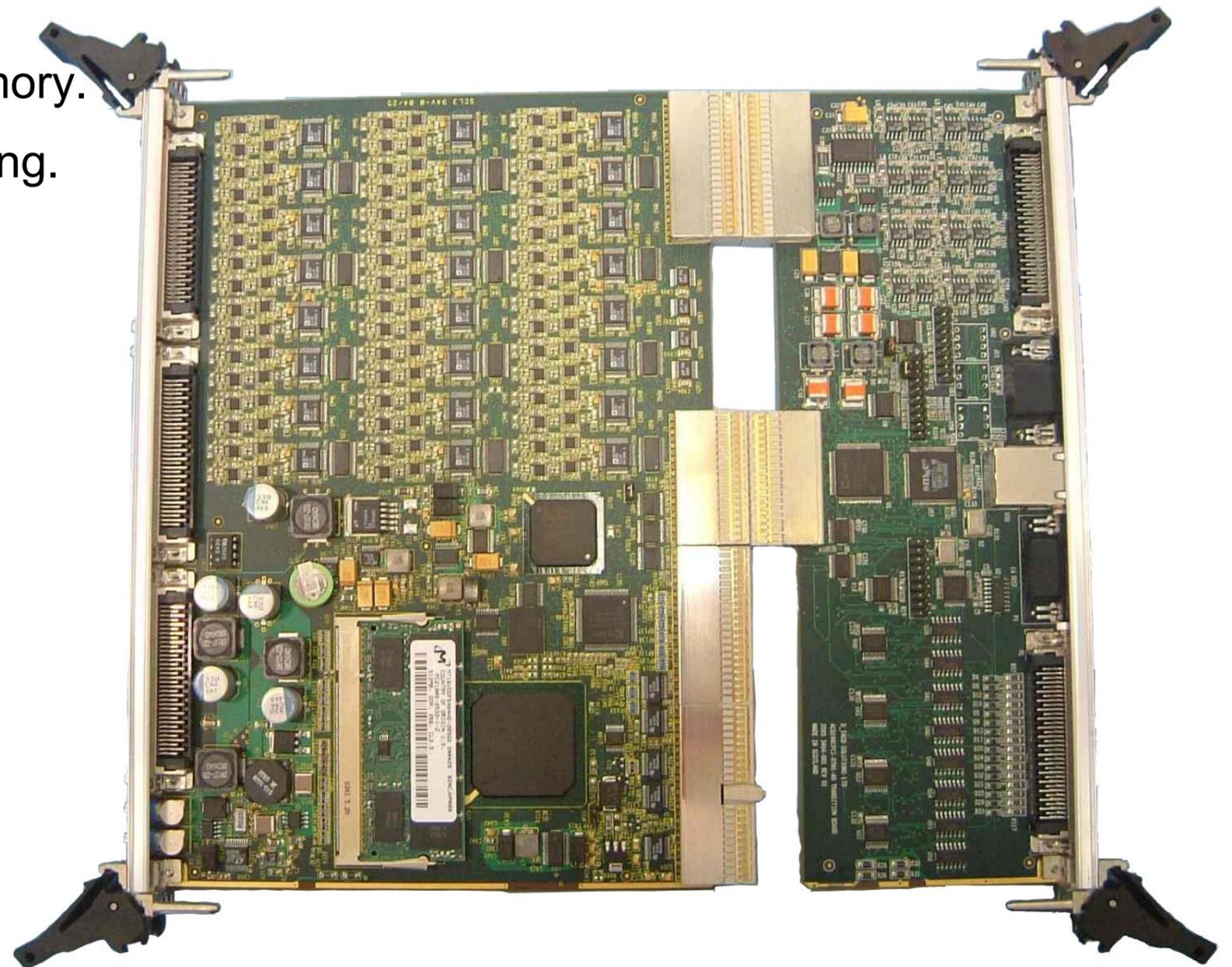
ACQ196CPCI

Maximum Channels

- 96 channels x 500kS/s 16 bit differential, protected inputs.
- Optional Analog Outputs, Digital IO RTM.
- Compact PCI standalone, peripheral and system slot card
- FPGA DSP capability.
- Ethernet Transient Recorder, 1GB memory.
- PCI Low latency and sustained streaming.

Applications

- General purpose plasma diagnostic
- Power Supply Monitoring
- Langmuir Probe arrays
- AXUV, Lyman Alpha point imaging
- Gyrotron conditioning
- Plasma Control



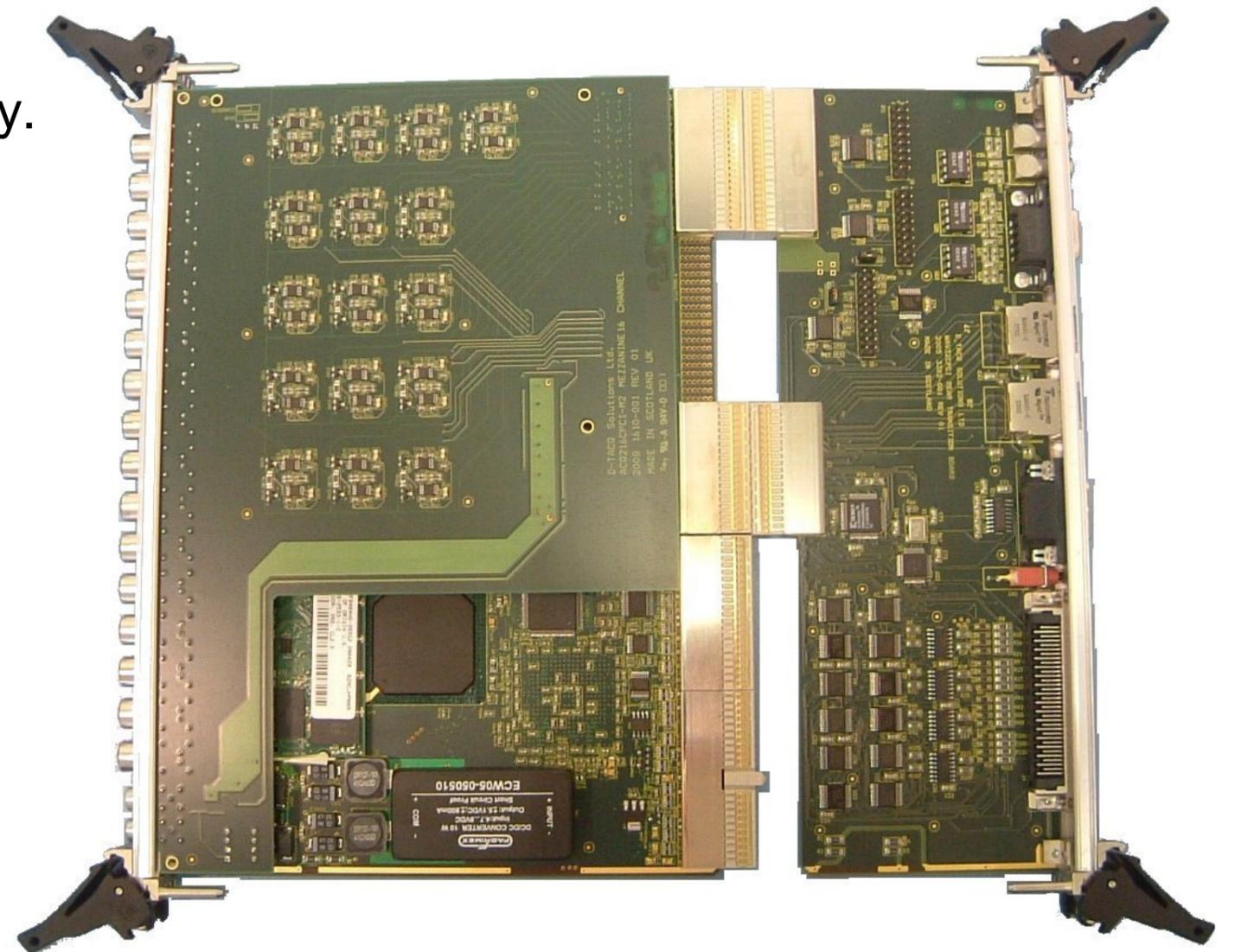
ACQ216CPCI

Maximum Sample Rate

- 16 channels x 16MS/s 16 bit differential, protected inputs.
- Options to 2 channels x 160MS/s.
- Precision DDS clock option on RTM.
- Compact PCI standalone, peripheral and system slot card
- FPGA DSP capability.
- Ethernet Transient Recorder, 1GB memory.
- PCI Low latency application

Applications

- General purpose plasma diagnostics
- RF Diagnostics
- Langmuir Probe arrays
- Klystron protection.
- Gyrotron conditioning fault monitor
- Combined Plasma Control and diagnostic.



ACQ132CPCI

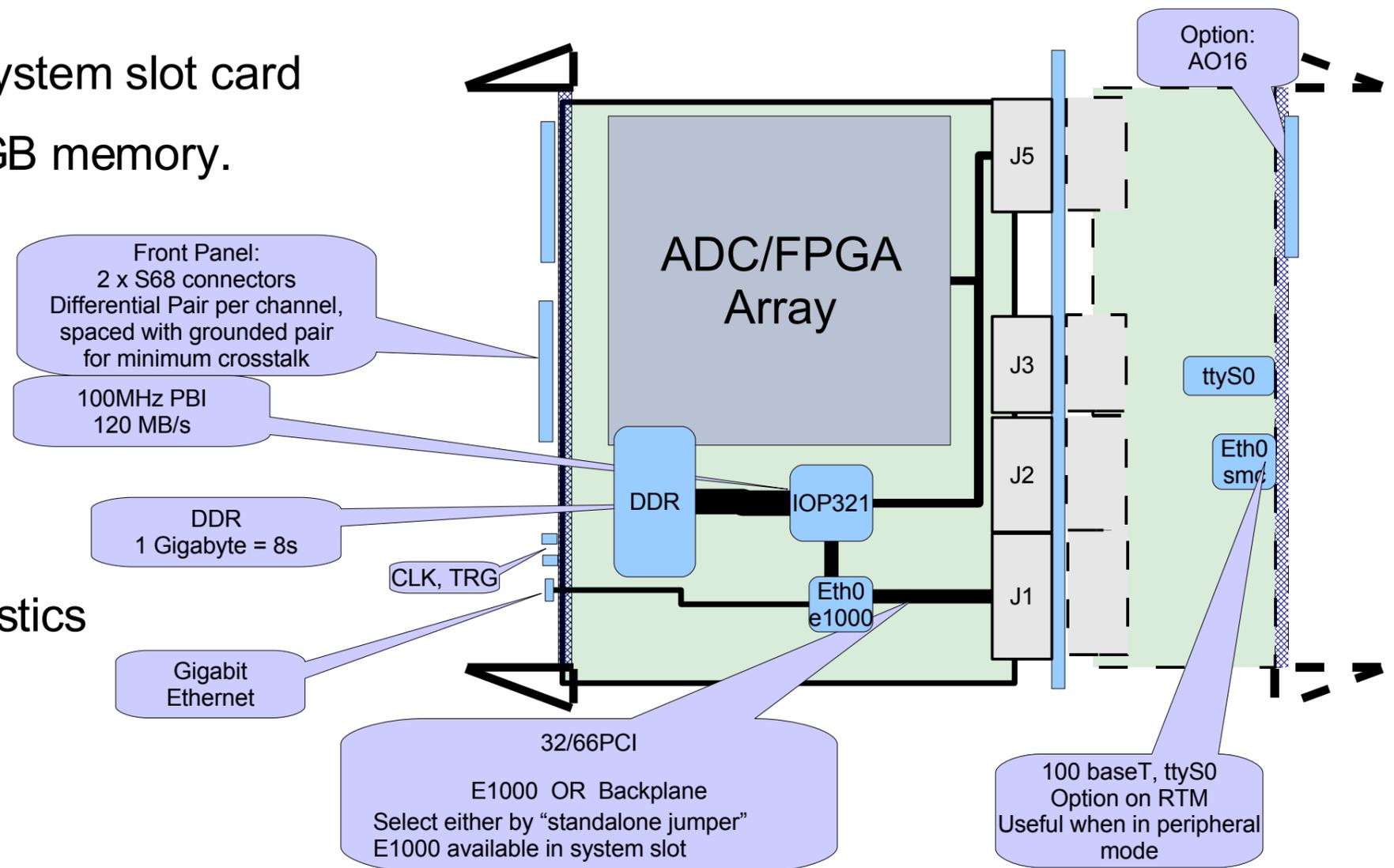
Most channels with Mhz sampling

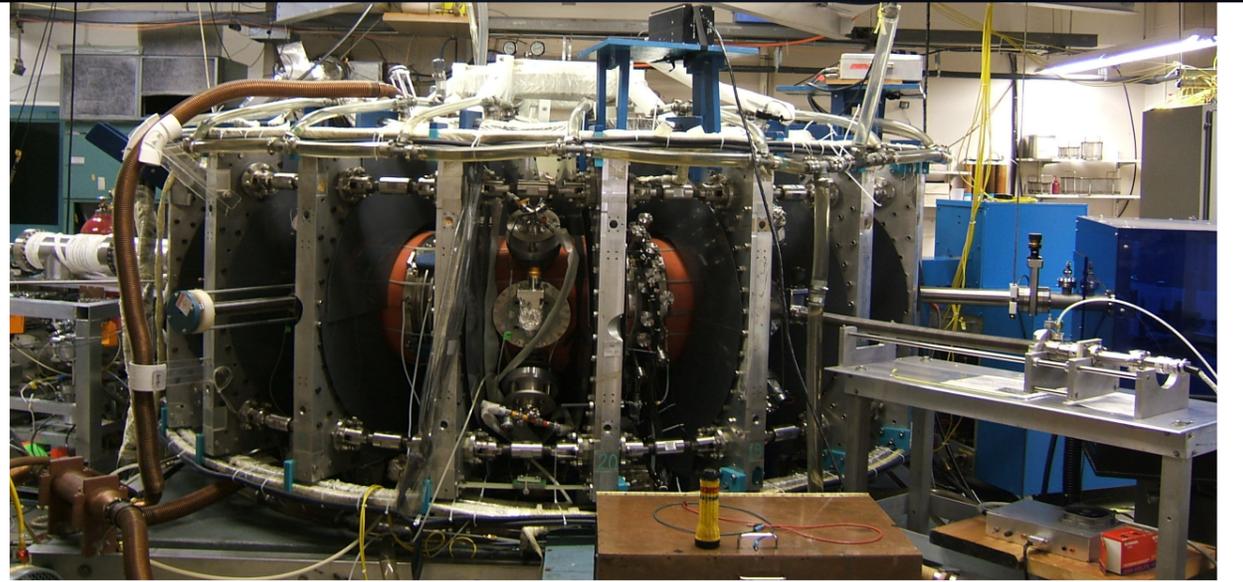
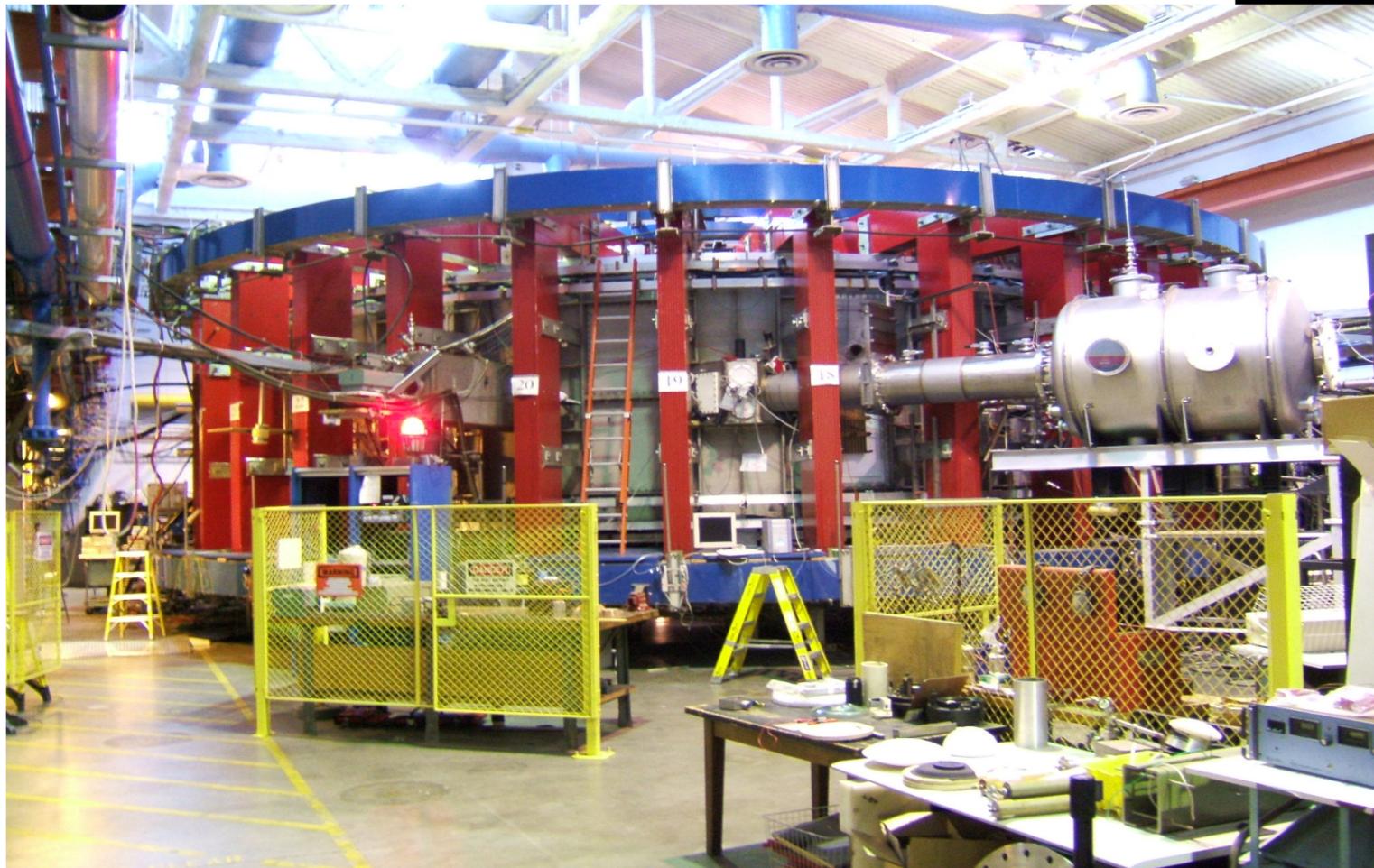
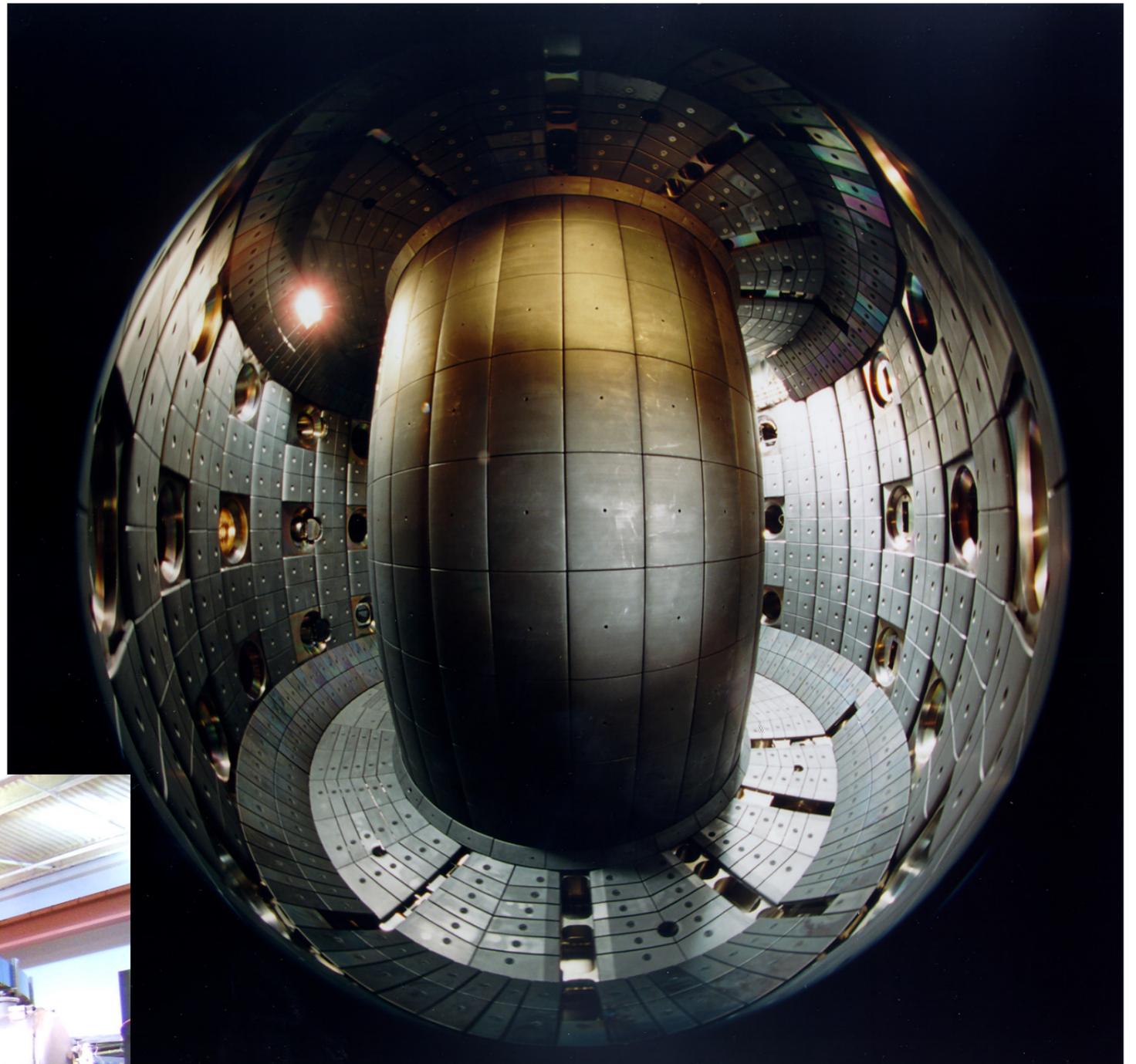
- 32 channels x 2MS/s 14 bit differential, protected inputs
- 16 channels x 4MS/s 14 bit.
- Distributed FPGA DSP capability – eg 32x oversampling FIR, 32MHz in, 2MS/s, 16 bit effective out.
- Precision clock option on-board.
- Compact PCI standalone, and system slot card
- Ethernet Transient Recorder, 1GB memory.



Applications

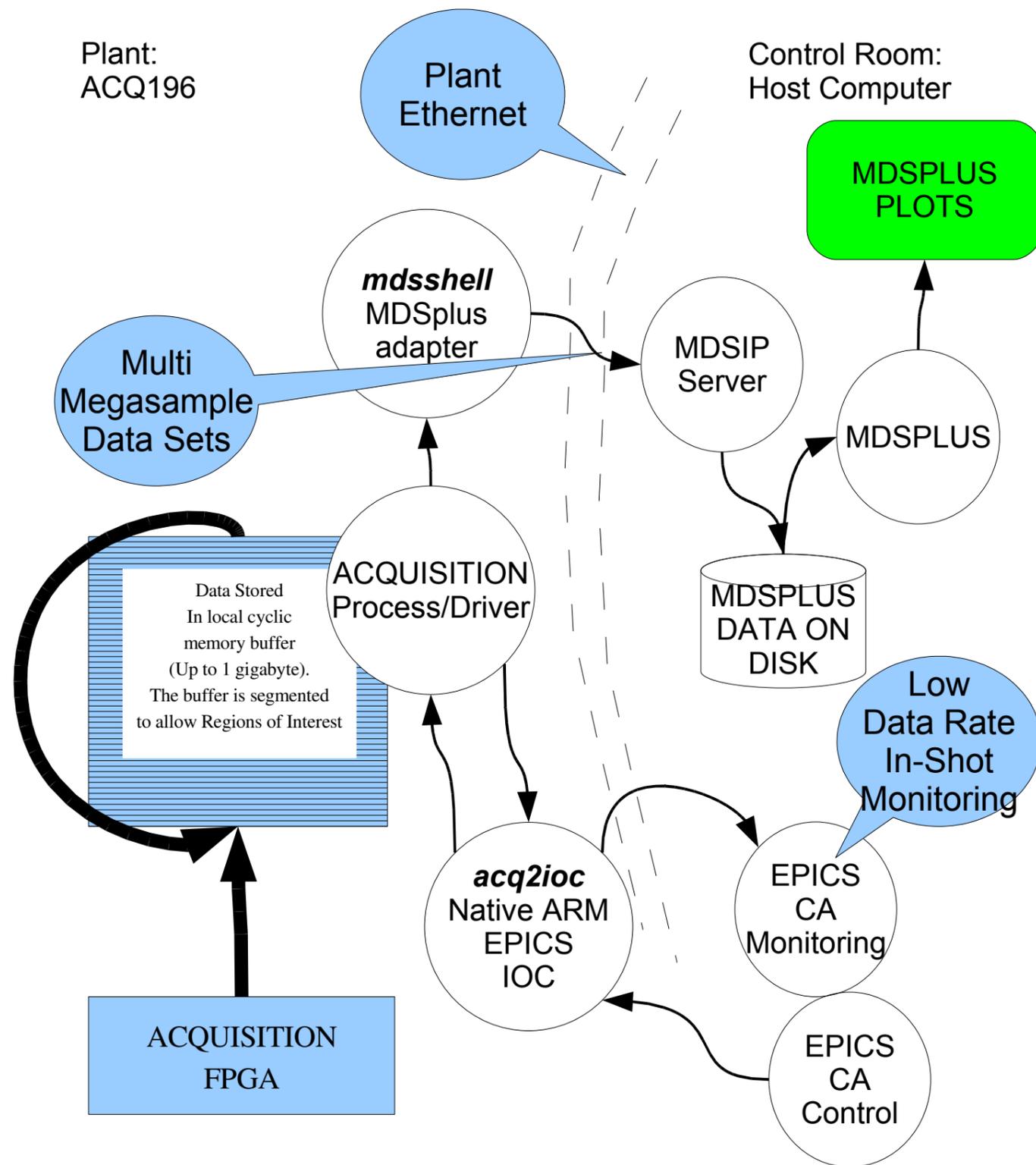
- General purpose plasma diagnostics
- RF Diagnostics
- Langmuir Probe arrays.





Embedded Processor, Open Interfaces

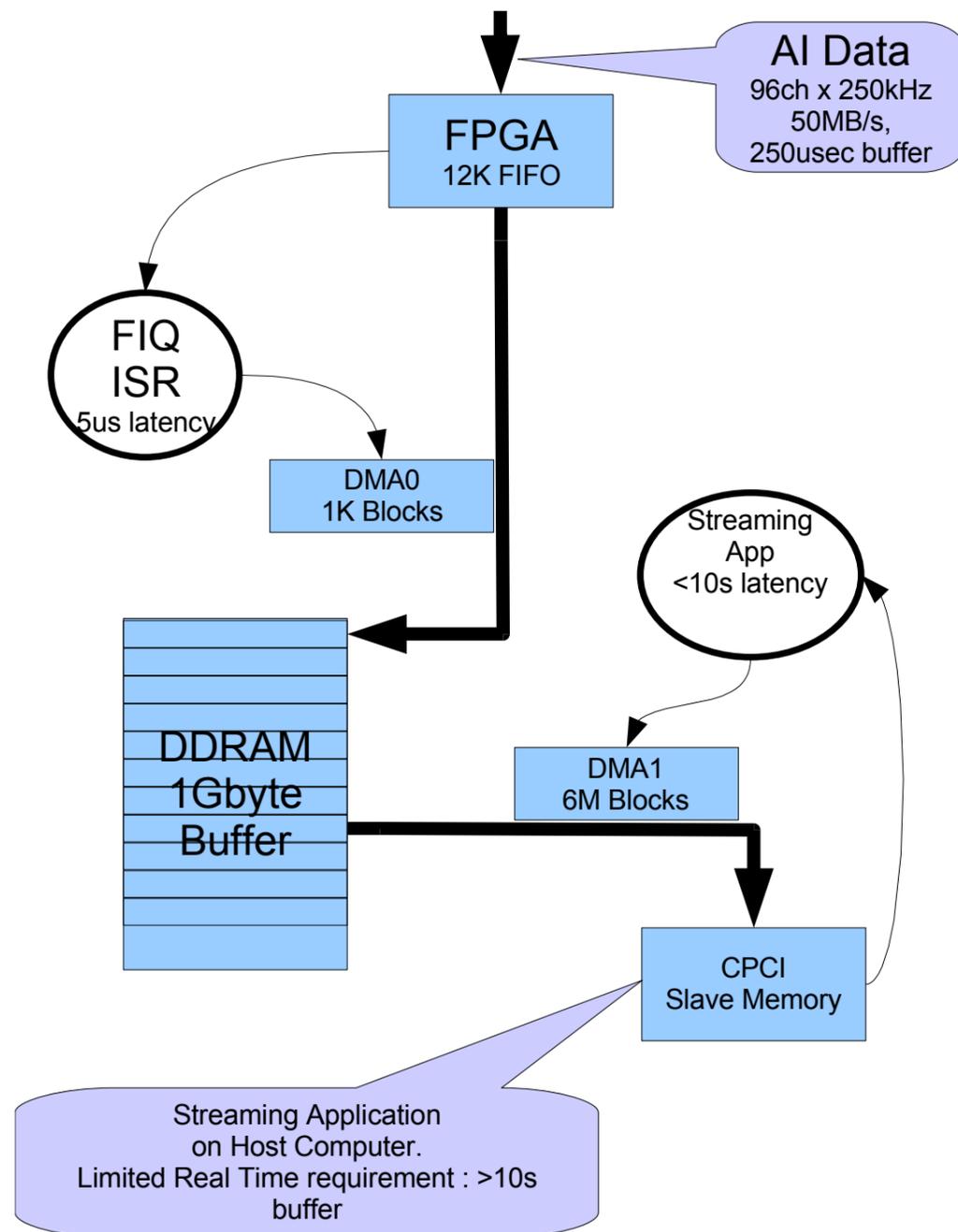
Intelligent Digitizer supports MDSplus, EPICS, Webservices



- Embedded MDSplus “ThinClient” - store calibrated data direct to MDS server
 - [not shown] Embedded MDSIP allows MDSplus server to control digitizer. And, via the system slot function, it's possible to control other devices in the chassis.
 - Embedded EPICS IOC – control and mean data monitoring. Easy to add more complex sequencing on top – eg compare ratios in channels and output a trip signal.
- Alternative control interface [not shown] :*
- Embedded processor offers a web service interface – SOAP RPC. Allows an external client to control every aspect of the card, or control acquisition using a high level C++ API.
 - WSDL definition of the web service allows automated connection to well known WS clients – eg MS .NET, Labview 8.20. Control possible with 5 line VB .NET program.

Solutions for Long Shot/Continuous Operation

High Bandwidth 64bit backplane, huge buffers, intelligent DMA



- CPCI backplane operation already used extensively for PCS. PCS applications are optimised for Latency.
- High bandwidth CPCI backplane also suitable for continuous data streaming for diagnostic applications, where the on-board DDRAM is no longer big enough to hold all the data.
- Block diagram shows firmware implementation optimised for high bandwidth. The firmware makes use of the full on-board memory (1GB) as a streaming buffer, more than 10s buffering.
- This means that the host OS has a very limited real time requirement, at least on the data acquisition side.
- Data transfer is under the control of the ACQ196, so cpu usage on the host system to handle incoming data is very low (<1% per card), leaving 99% of cpu resource free for data processing, including storage.
- Scalable implementation eg: 4 x ACQ196, 384 channels, 250kS/s/channel, 200MB total data flow on 64bit, 33MHz backplane.