# Gigabit Ethernet for DATE

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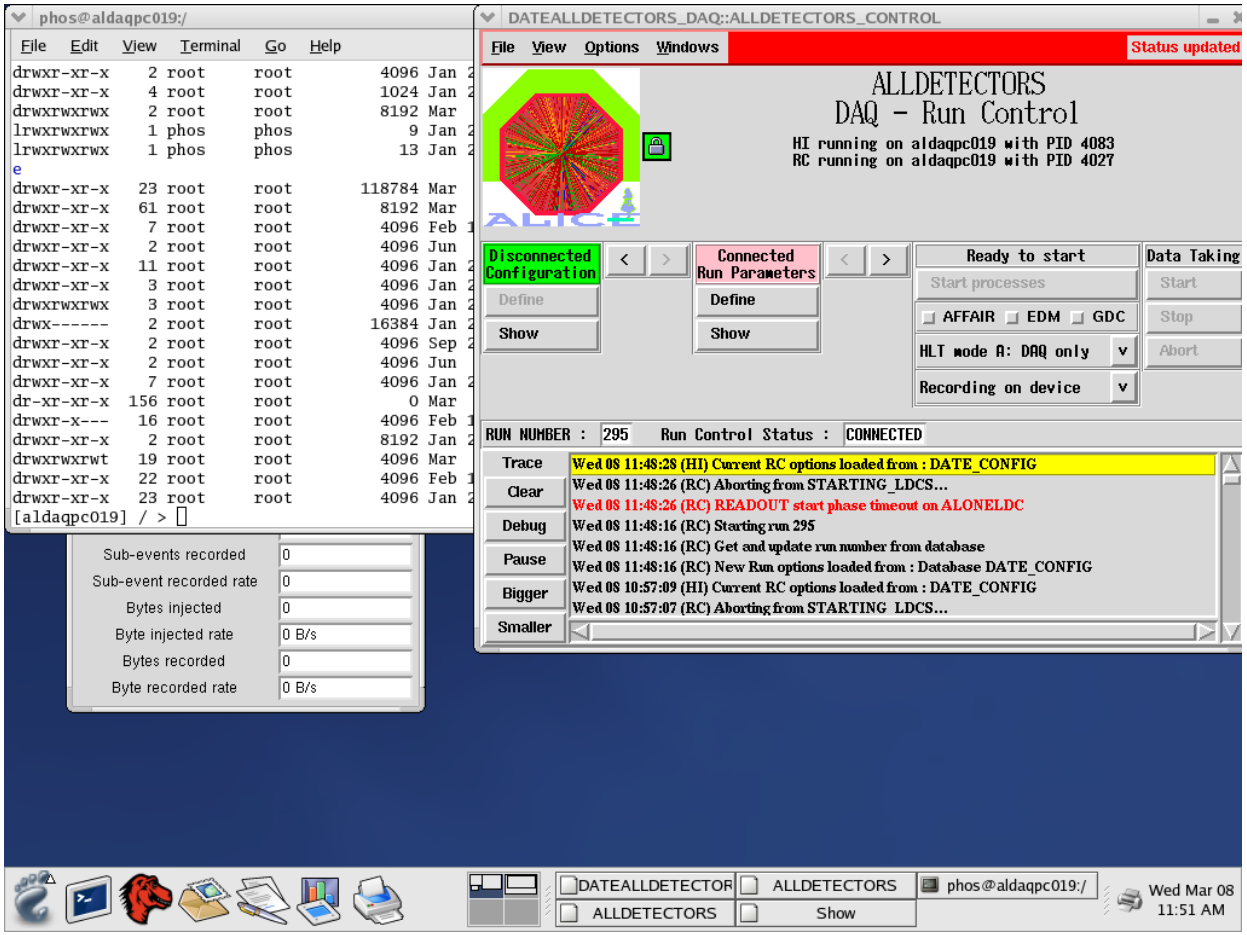
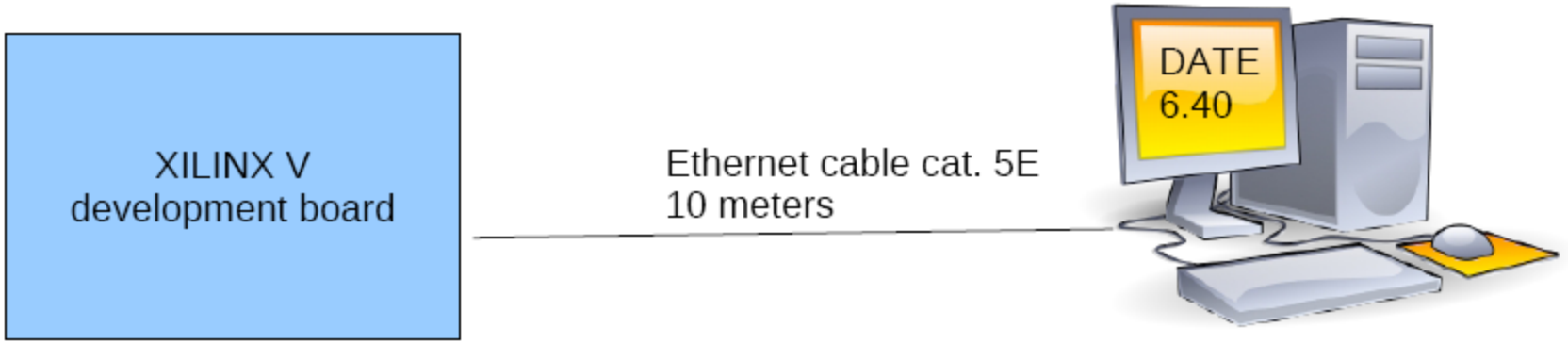
# DATE Data Acquisition software

http://ph-dep-aid.web.cern.ch/ph-dep-aid/




-Linux-based
-baseline for all ALICE detectors
-also used by other users
-easy User interface
-very well documented
-in use both for test-systems and full ALICE detector system
-Root file storage
-I/O interface to MM fiber
-porting to GBE over MM fiber : first results reported here

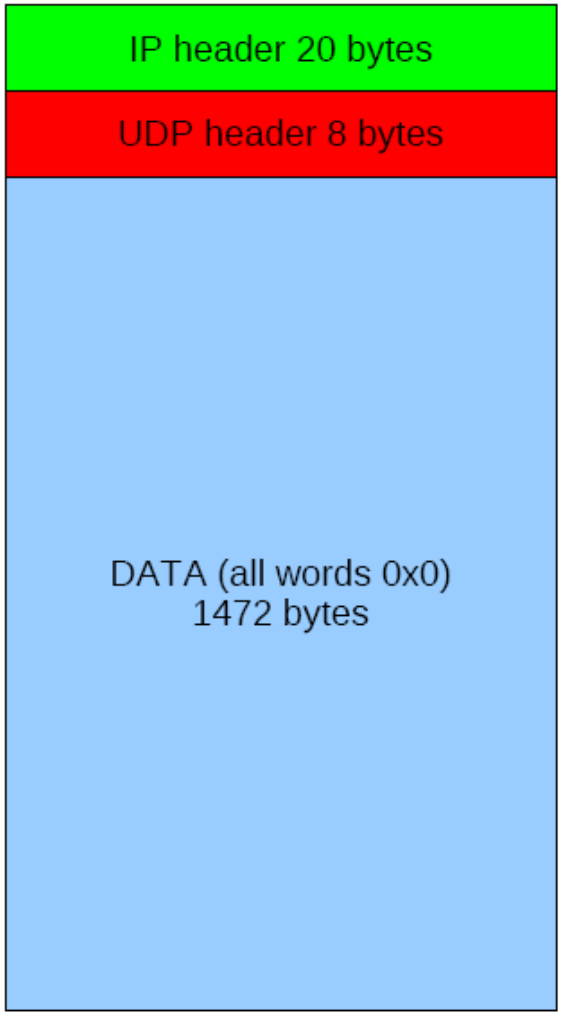
# Communication test

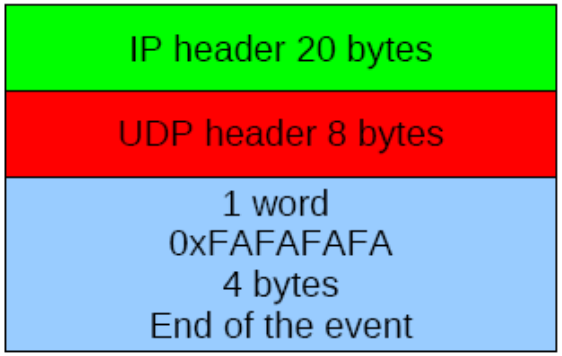



We checked the communication between the development board and the DATE software. The board was generating packet of 1500 bytes size and the software correctly received them on the other side.

COMMUNICATION TEST ✓

# UDP Datagram format



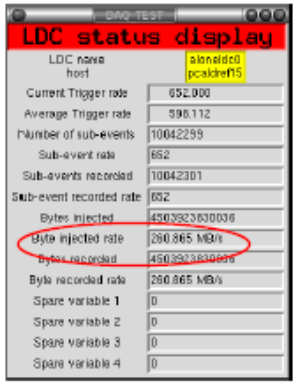




UDP datagrams format, generated by the development board.
The event is closed when DATE receives and recognizes the word **0xFAFAFAFA**

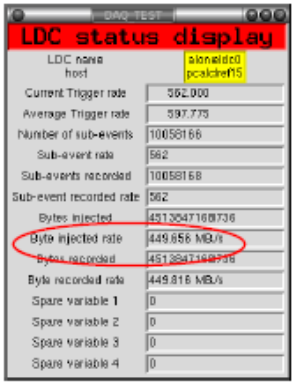
# Throughput/Frequency test

During our test we reached a trigger rate of 14 KHz and 20 MB/s … the setup still needs to be tuned.
To obtain higher throughput it is necessary to use bigger UDP packets, otherwise the system will reach the maximum frequency without reaching high throughput.

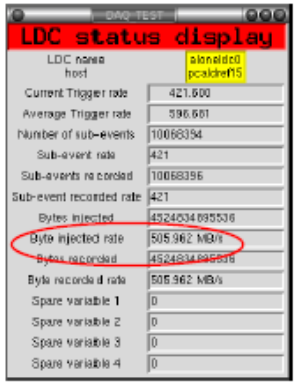
## Throughput using a software UDP data generator



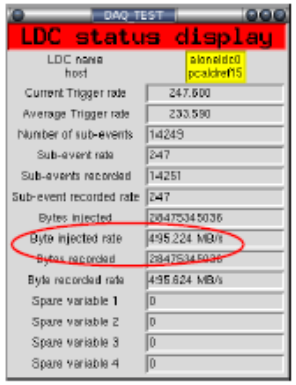

Using UDP packet of
8000 byte
Event size 400100 Bytes



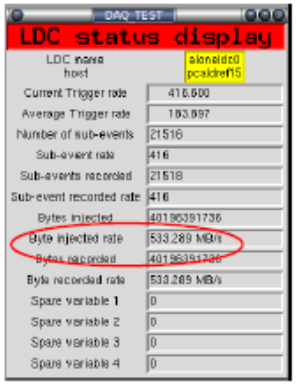

Using UDP packet of
16000 byte
Event size 800100 Bytes




Using UDP packet of
24000 byte
Event size 1200100 Bytes

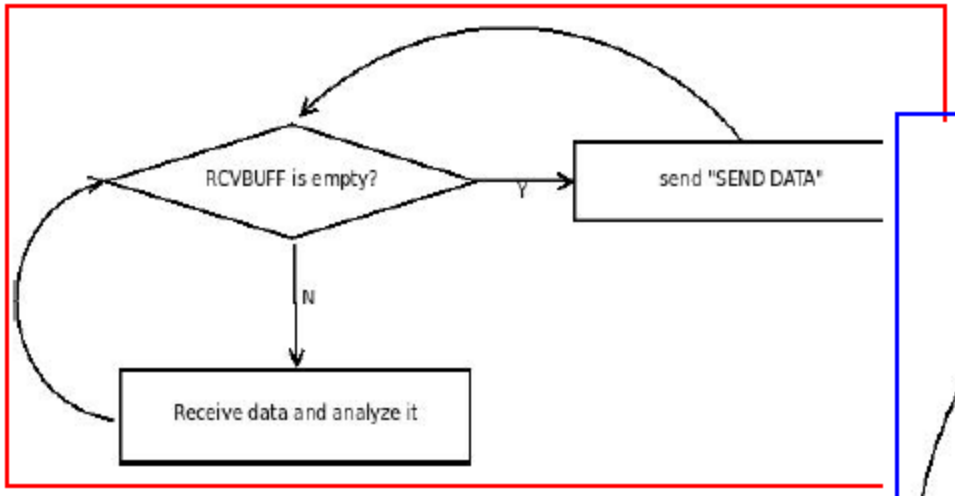



Using UDP packet of
40000 byte
Event size 2100000 Bytes

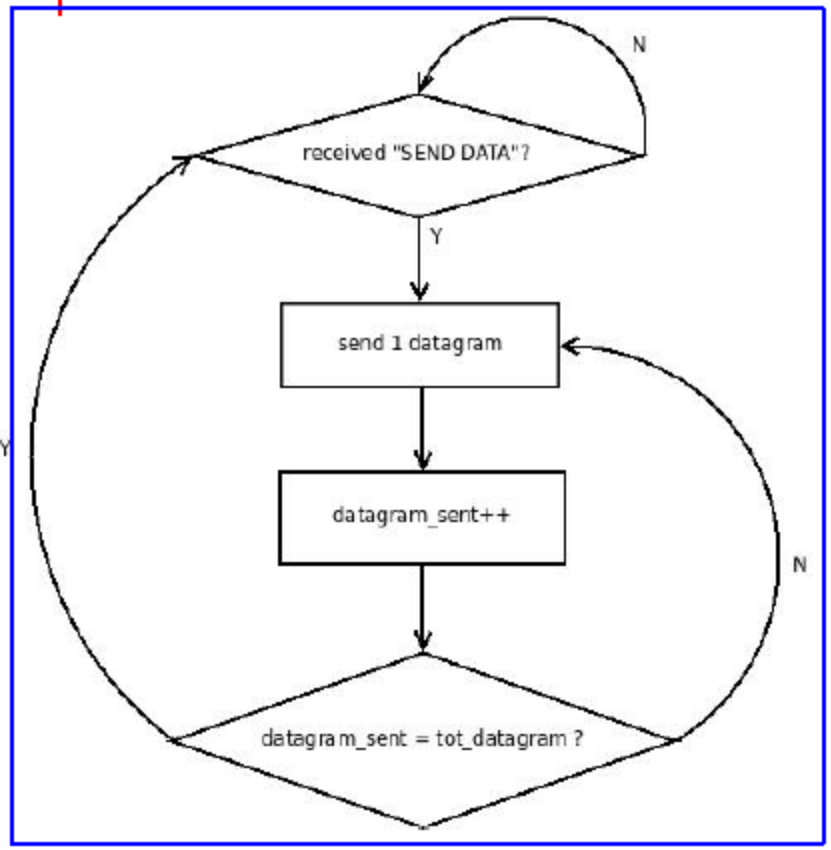



Using UDP packet of
64000 byte
Event size 1280100 Bytes

# Busy algorithm

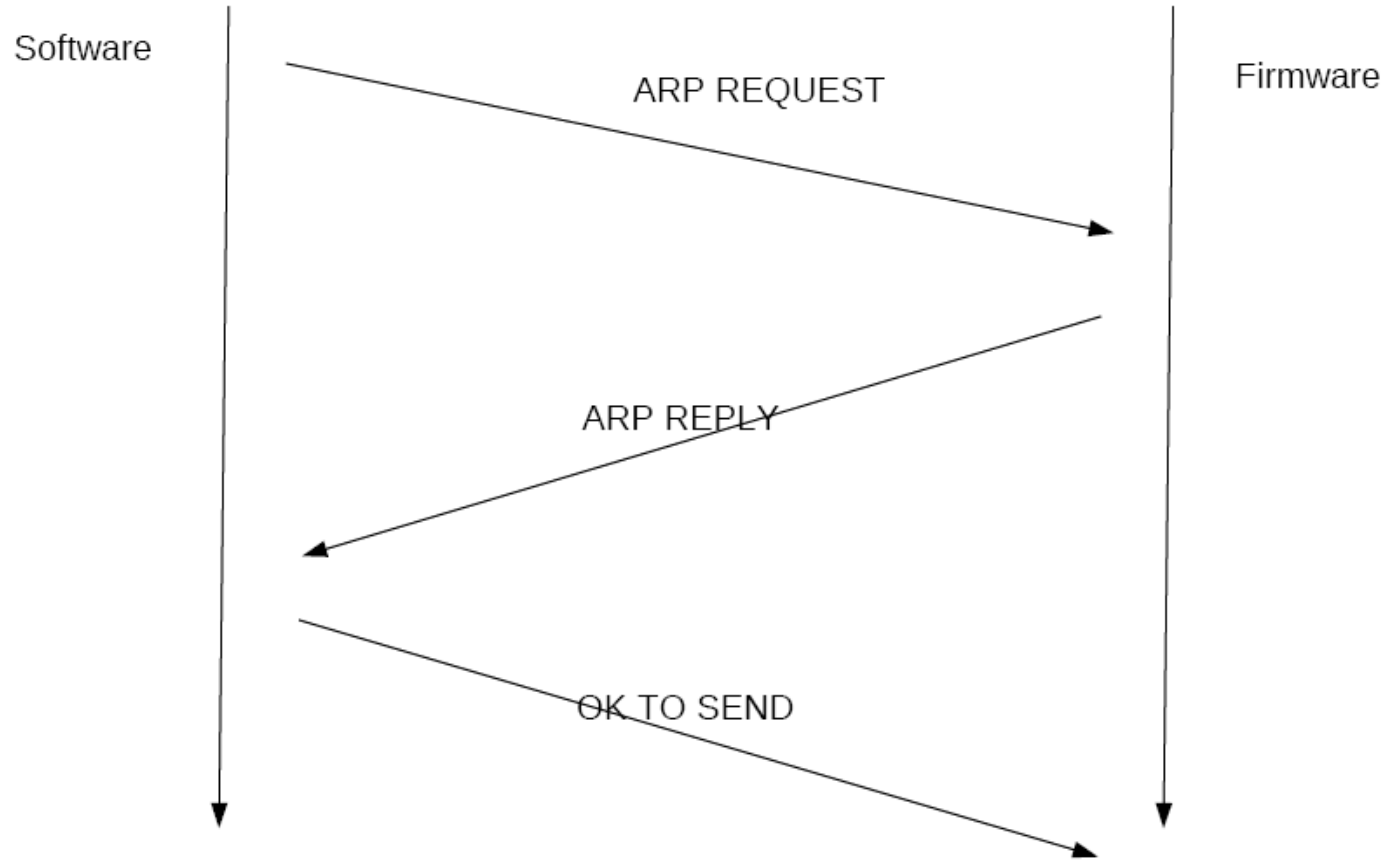



Software busy




Firmware busy

# Communication during Busy



# development platform for hardware –made UDP