



Efficiency studies

- ✓ **SOURCES**
- ✓ **IN-BEAM**

AGATA week September 2017

Standard measurement during the preparation

$$\varepsilon_{1.4 \text{ MeV}} = \frac{N_{\gamma}}{\text{Act} \times \Delta T \times (1-DT) \times BR}$$

~2% uncertainties

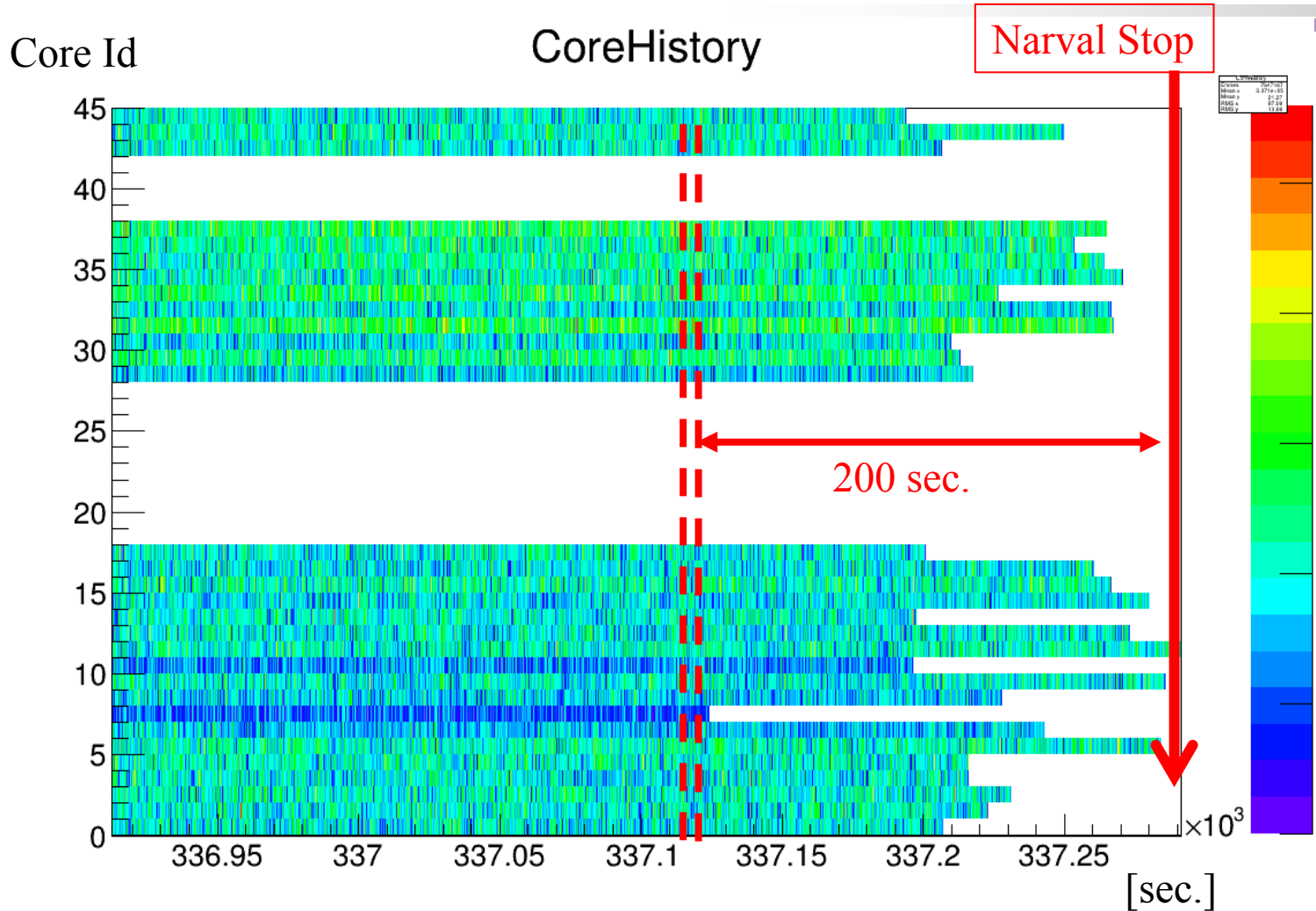
$$\varepsilon_{1.4 \text{ MeV}} = \varepsilon_{\text{GEANT4}}$$

Standard measurement during the preparation

$$\varepsilon_{1.4 \text{ MeV}} = \frac{N_{\gamma}}{\text{Act} \times \Delta T \times (1-\text{DT}) \times \text{BR}}$$

AGATA is not in common dead time.
 Each crystal is +/- in trigger less

^{60}Co run example

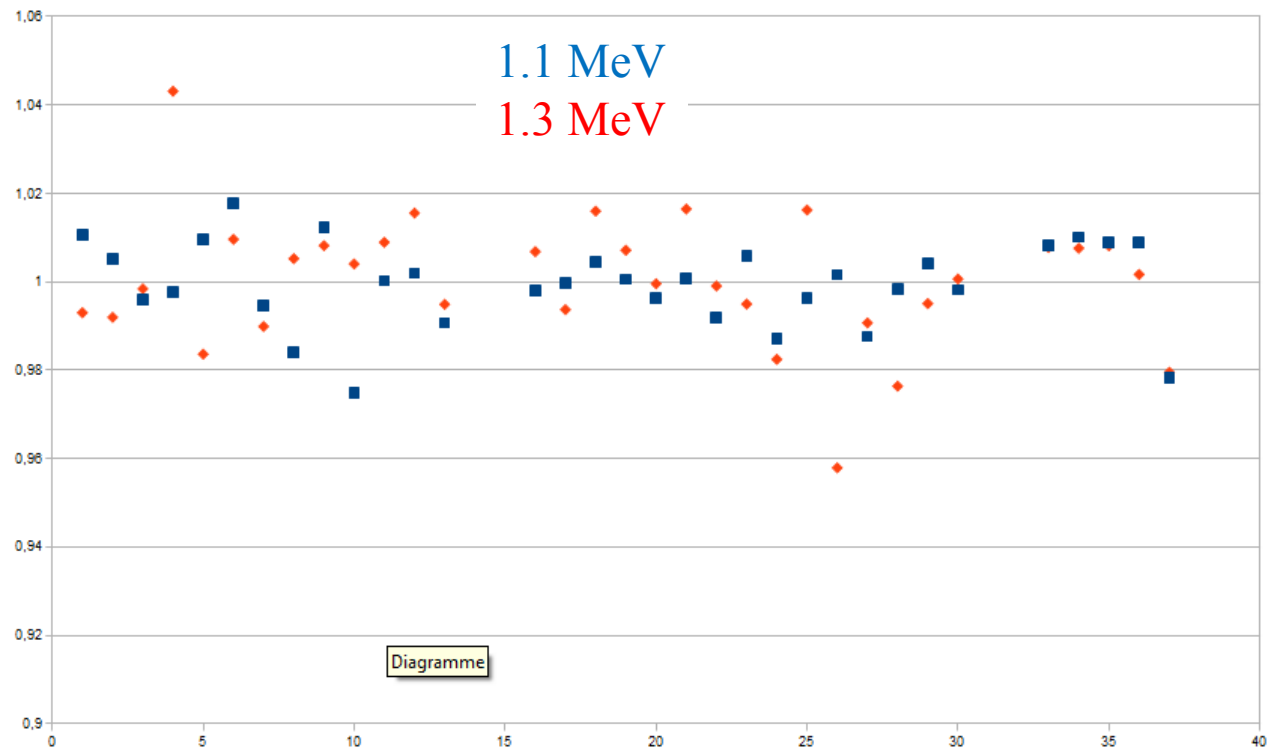


The writing on disk is asynchronous and the last buffer of each crystal is lost at the stop which takes ~2 sec. Go back to traces at least or cut in the ACQ Time

Standard measurement during the preparation

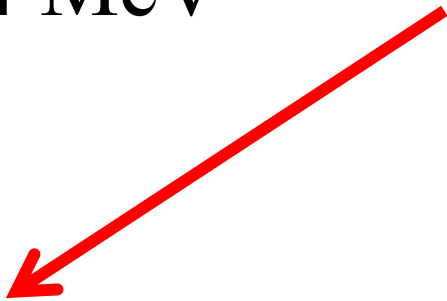
$$\epsilon_{1.4 \text{ MeV}} = \frac{N_{\gamma}}{\text{Act} \times \Delta T \times (1 - \text{DT}) \times \text{BR}}$$

We usually correct for possible dead time using the GANIL electronic which has a much higher dead time and which can be quantified by running with the AGAVA triggered by the OrAGATA in ancillary.sh



At low rate, the GTP or only the Root node has not effect on the measured efficiency

$$\epsilon_{1.4 \text{ MeV}} = \epsilon_{\text{GEANT4}}$$



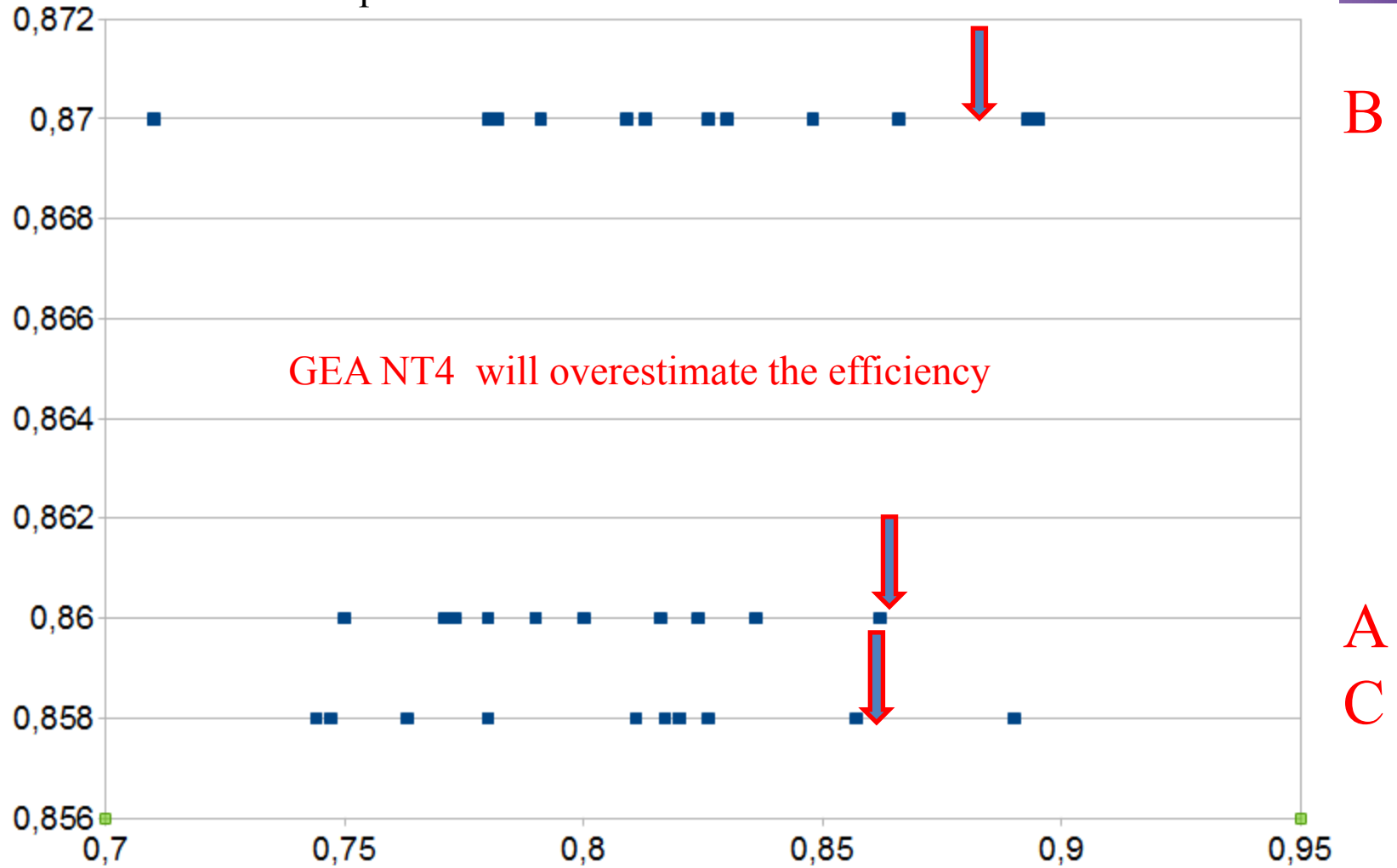
In **nominal** :
 Crystal A-type = 0.106% = 86%
 Crystal B-type = 0.117 % = 87%
 Crystal C-type = 0.106 % = 85.8%



- ❖ The absolute efficiency is not a CAT criteria
- ❖ It is given in the CANBERRA technical sheet for each capsule delivered
- ❖ It is cross checked only in 30% of the CAT according to the reports. They often differ.

GEANT4

The 35 capsules in 2017



Canberra

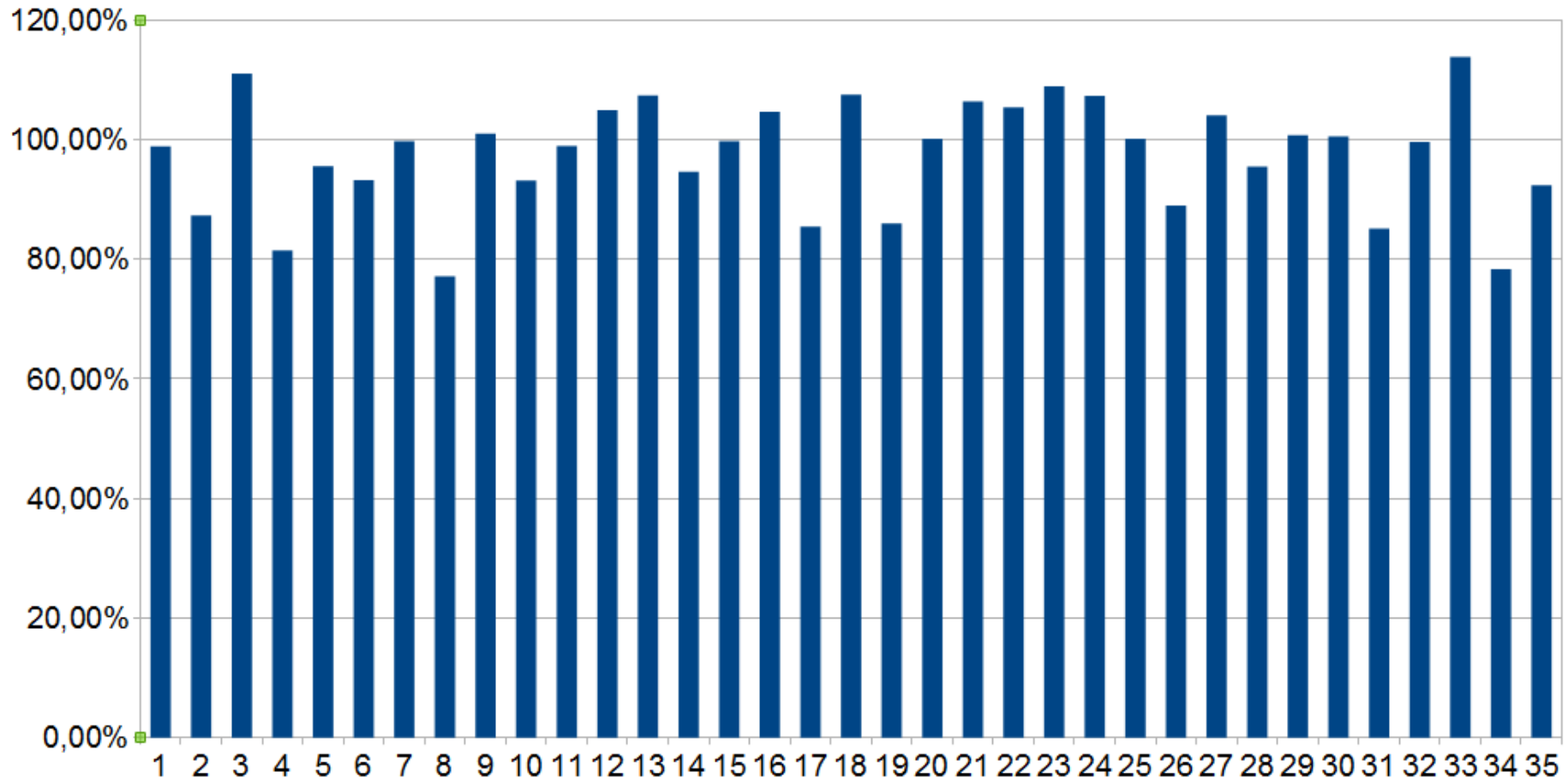
$$\varepsilon_{1.4 \text{ MeV}} = \varepsilon_{\text{GEANT4}} \rightarrow \varepsilon_{\text{GEANT4 cor}}$$

Run 78 E706 (2017) 35 crystal in nominal
 (no trace, no histo, no PSA, ancillary.sh)

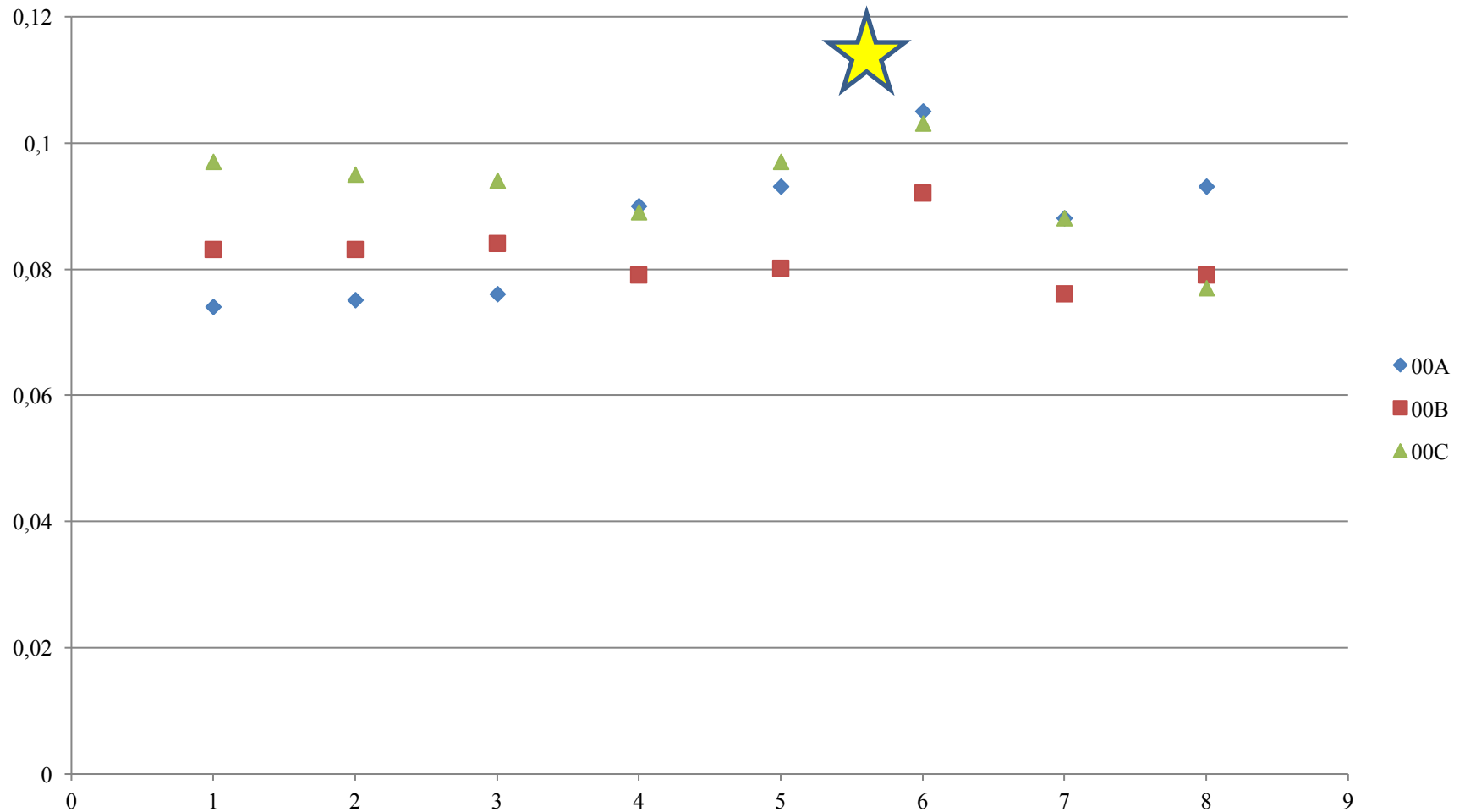
$$\varepsilon_{\text{single @1.4 MeV}} = 3.4(1)\%$$

$$\varepsilon_{\text{single G4}} = 3.8\%$$

$$\varepsilon_{\text{single G4c}} = 3.6\%$$



Accidental GANIL black-out
 All connections closed, reshuffle of the /agatadisks



The in-beam efficiency is hard to estimate because the reaction σ is not known

Extrapolation from radioactive sources has no sense:

Multiplicity effect if nominal \rightarrow compact

Pile-up effects in FEBEE

Unexpected/uncontrolled effects

Status Report e661 (juin 2016) Spectroscopy of fission fragments (32 capsules) in compact

02/02/2017

A. Lemasson et M. Rejmund

The gamma efficiency from $\gamma\gamma$ coincidence in [low activity ^{152}Eu] using 344 keV - 778 keV, gated from above, is at 344 keV $\sim 10.4\%$
 $\Delta 1.4 \text{ MeV}, F=1.5$

Experimental data :

(Doppler corrected and isotopically identified ^{100}Zr),

the gamma efficiency from the $\gamma\gamma$ coincidence 352 keV – 497 keV, gated from above, is at 352 keV $\sim 5.6\%$.

$\Delta 1.7 \text{ MeV } F=1$

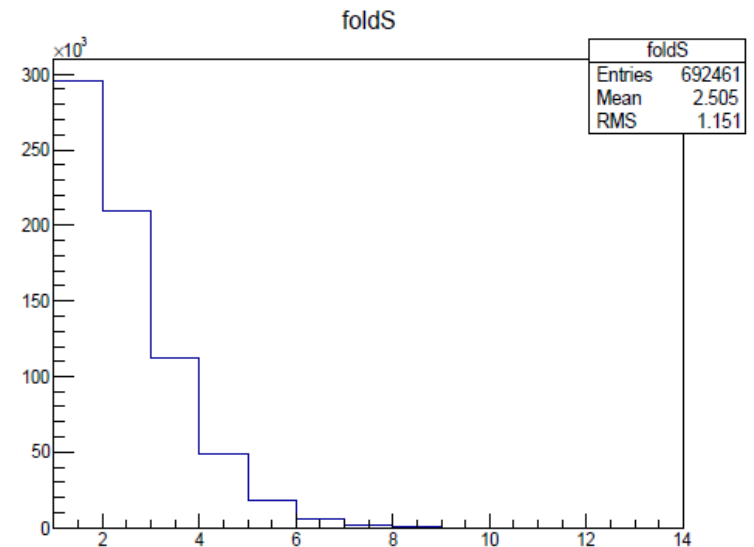
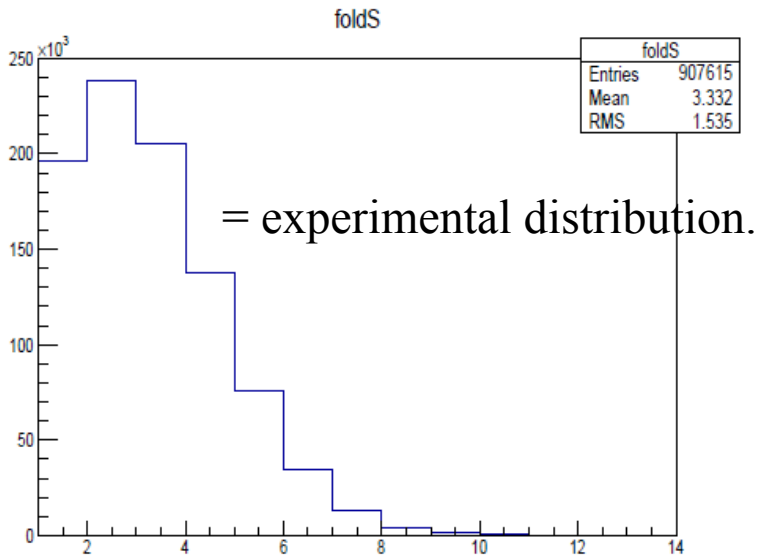
(cheap) fission source in GEANT4 + exact geometry

/Agata/generator/gamma/band 200 300 8

$\sim^{100}\text{Zr}$

Compact

Nominal



(cheap) fission source in GEANT4 + exact geometry

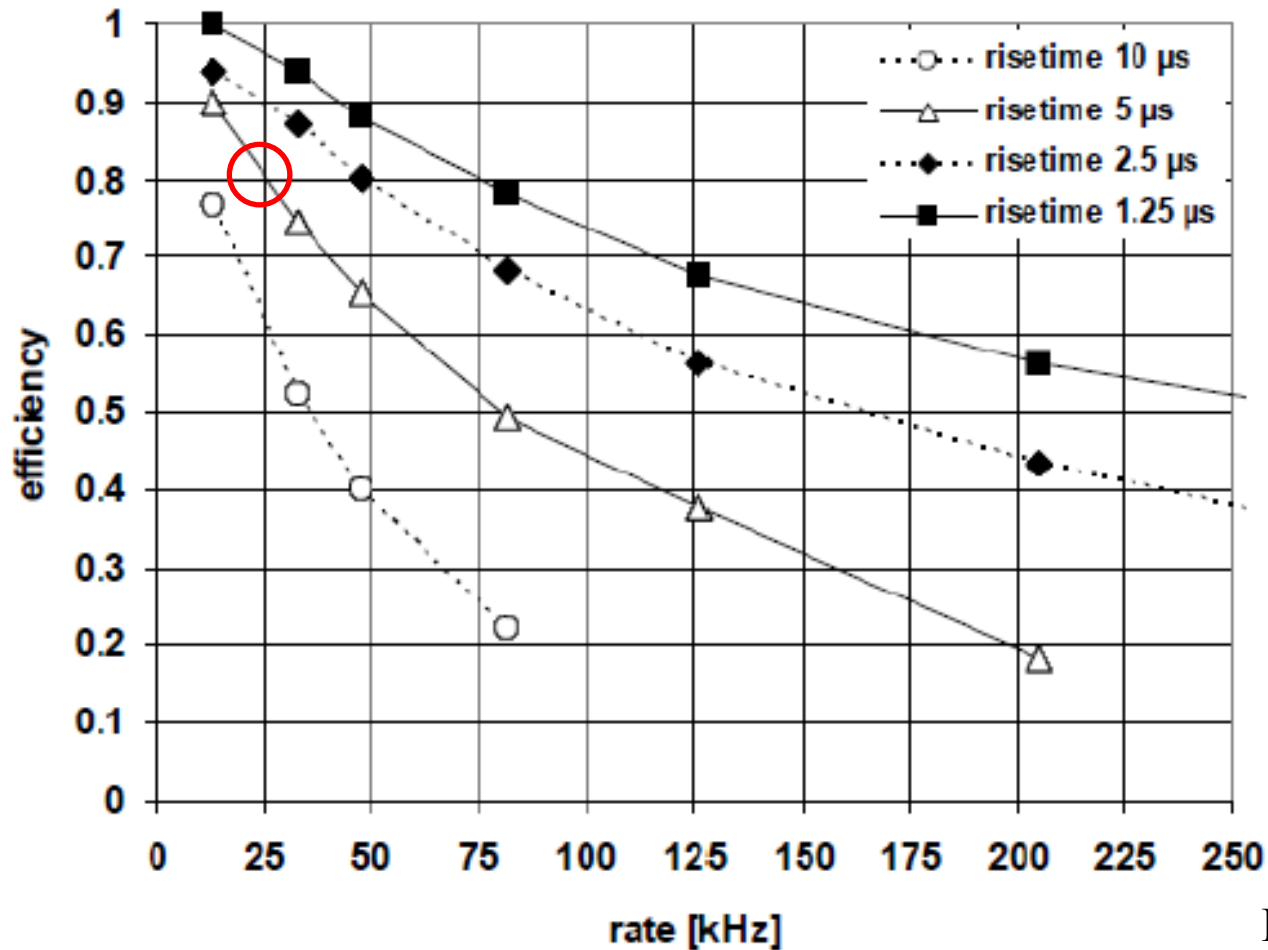
Table 11: Summary

Energy [MeV]	Config	Single	OFT (F)	MGT (F)
1.1	Nominal Mono Energy at Rest	4.4	6.1 (1.38)	6.2 (1.4)
1.1	Compact Mono Energy at Rest	8.1	11.3 (1.40)	11.4 (1.4)
1.1	Compact ⁶⁰ Co at Rest	7.7	10.6 (1.37)	10. (1.33)
1.1	Compact Fission at Rest	7.5	9.6 (1.28)	8.1 (1.08)
1.1	Nominal Fission at Rest	4.2	5.7 (1.35)	5.1 (1.21)
1.1	Compact Mono Energy $\beta=0.1$	7.3	10.1 (1.38)	10.1 (1.38)
1.1	Compact Fission $\beta=0.1$	6.5	8.7 (1.26)	7.4 (1.07)
1.1	Compact Fission $\beta=0.1$ by $\gamma - \gamma$	6.1		

There is an obvious loss in compact configuration due to the multiplicity

\mathcal{E} 7.7% \rightarrow 6.5%

F 1.37 \rightarrow 1.26



→ 20% loss

F. Recchia et al. LNL report

Back in 2016, we noticed a loss in validation for the GGP channels later explained by a too short TIMEOUT at the GTS block level with respect to the general latency of the GTS system at this load

Corrected since March 2017

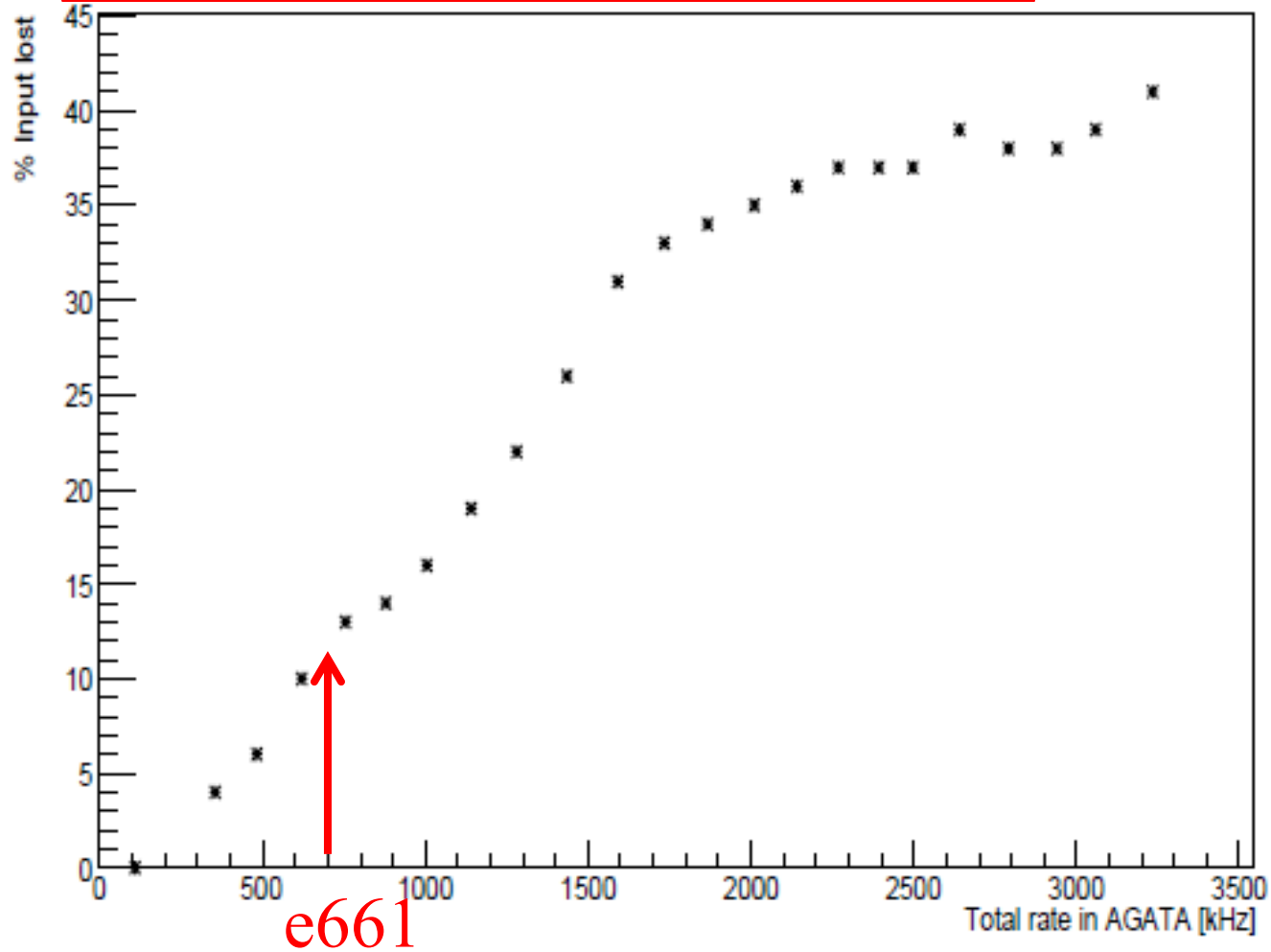
00A	going			24.5 k	50k/s
00B	going			21.0 k	50k/s
00C	going			24.0 k	50k/s
02A	going			24.2 k	50k/s
02B	going			26.3 k	50k/s
02C	going			23.7 k	50k/s
03A	going			25.2 k	50k/s
03B	going			25.8 k	50k/s
03C	going			26.0 k	50k/s
04A	going			25.0 k	50k/s
04B	going			26.7 k	50k/s
04C	going			24.2 k	50k/s
05A	GOING			19.4 k	50k/s
05B	GOING			22.0 k	50k/s
05C	GOING			18.1 k	50k/s
09B	going			21.0 k	50k/s
09C	GOING			20.5 k	50k/s
10A	going			21.4 k	50k/s
10B	going			19.2 k	50k/s
10C	going			23.2 k	50k/s
11A	GOING			19.8 k	50k/s
11B	GOING			27.2 k	50k/s
11C	GOING			24.7 k	50k/s
12A	going			22.2 k	50k/s
12B	going			21.1 k	50k/s
12C	going			24.3 k	50k/s
13A	going			20.8 k	50k/s
13B	going			23.9 k	50k/s
13C	going			22.4 k	50k/s
14A	going			19.2 k	50k/s
14B	GOING			21.0 k	50k/s
14C	GOING			23.1 k	50k/s

00A	going			395	500/s
00B	going			299	500/s
00C	going			367	500/s
02A	going			410	500/s
02B	going			443	500/s
02C	going			387	500/s
03A	going			409	500/s
03B	going			379	500/s
03C	going			370	500/s
04A	going			379	500/s
04B	going			412	500/s
04C	going			399	500/s
05A	GOING			178	500/s
05B	GOING			207	500/s
05C	GOING			141	500/s
09B	going			344	500/s
09C	GOING			198	500/s
10A	going			302	500/s
10B	going			316	500/s
10C	going			374	500/s
11A	GOING			186	500/s
11B	GOING			278	500/s
11C	GOING			275	500/s
12A	going			343	500/s
12B	going			360	500/s
12C	going			376	500/s
13A	going			349	500/s
13B	going			398	500/s
13C	going			363	500/s
14A	going			313	500/s
14B	GOING			236	500/s
14C	GOING			243	500/s

High rate effect

2017 GANIL MBq ^{60}Co source (32 crystals) ATCA + GGP

GTS limitation to be understood



All these effects participate to losses in the in-beam efficiency

AGATA crystals are not in common dead time.

As a consequence BOTH the total projection **AND** the $\gamma\gamma$ are affected



Including these losses in the G4 reading

Table 11: Summary

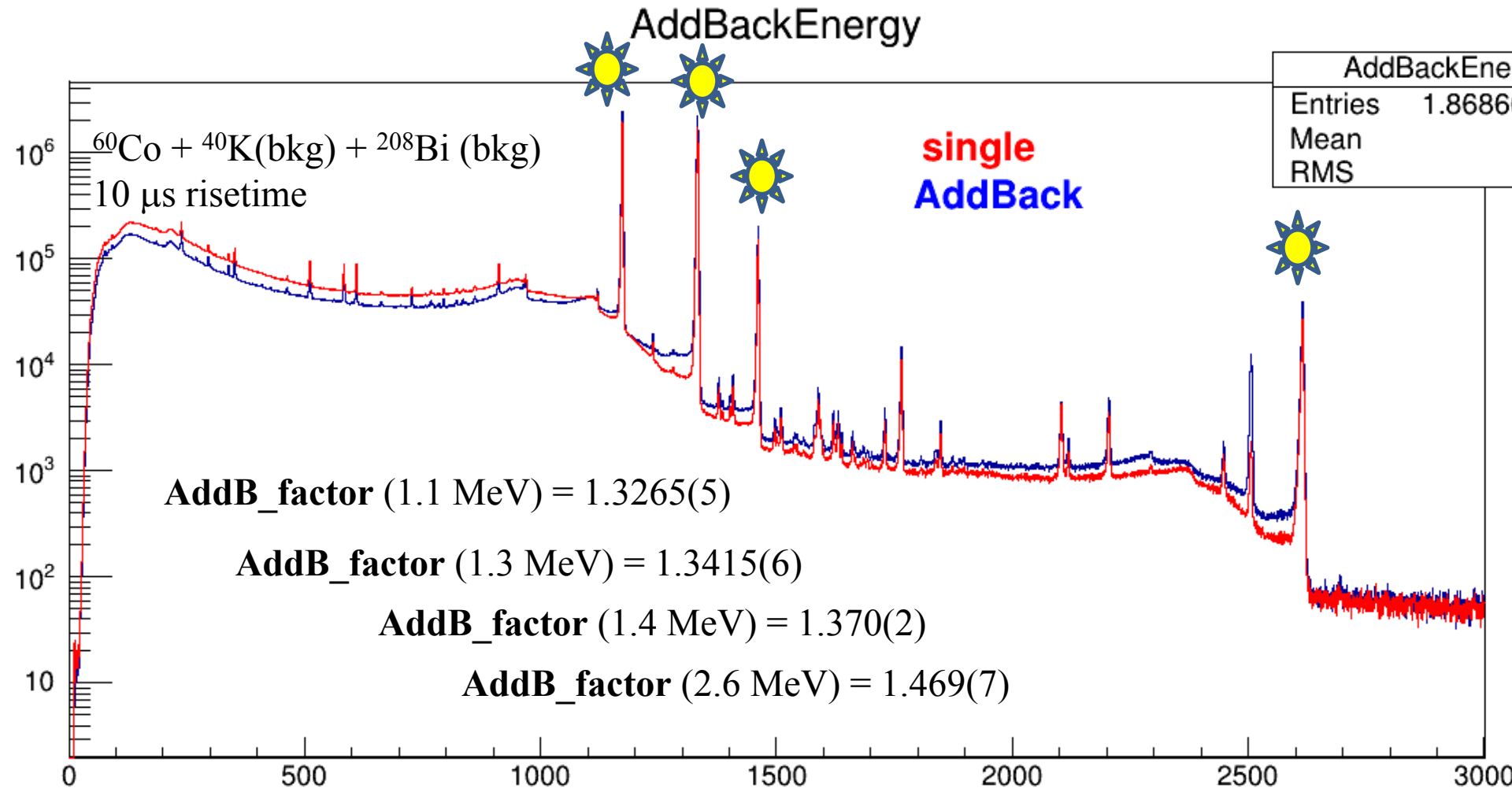
Energy [MeV]	Config	Single	OFT (F)	MGT (F)
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1.1	Compact Fission $\beta=0.1$	6.5	8.7 (1.26)	7.4 (1.07)
1.1	Compact Fission $\beta=0.1$ by $\gamma - \gamma$	6.1		
1.1	Compact Fission+FEBEE $\beta=0.1$	4.0		
1.1	Compact Fission+FEBEE $\beta=0.1$ by $\gamma - \gamma$	3.5		

54% losses between low activity source and in-flight fission source at high multiplicity and high counting rate

Addback Factor 1.38 \rightarrow 0.94

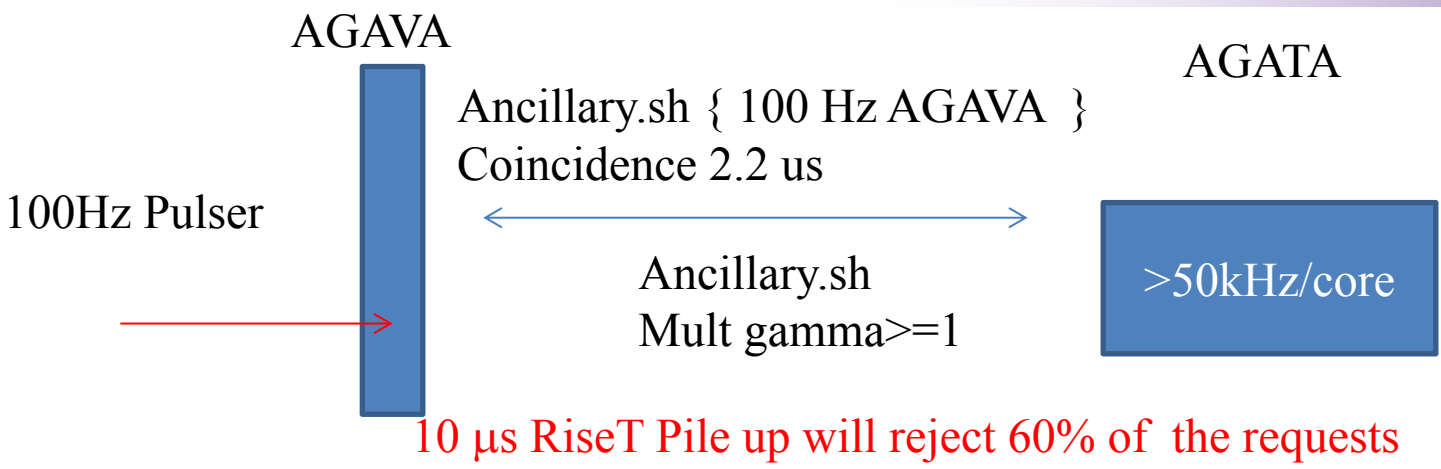
E661 \rightarrow 46% measured losses, F \sim 1

Inappropriate RiseT vs AddBack factor

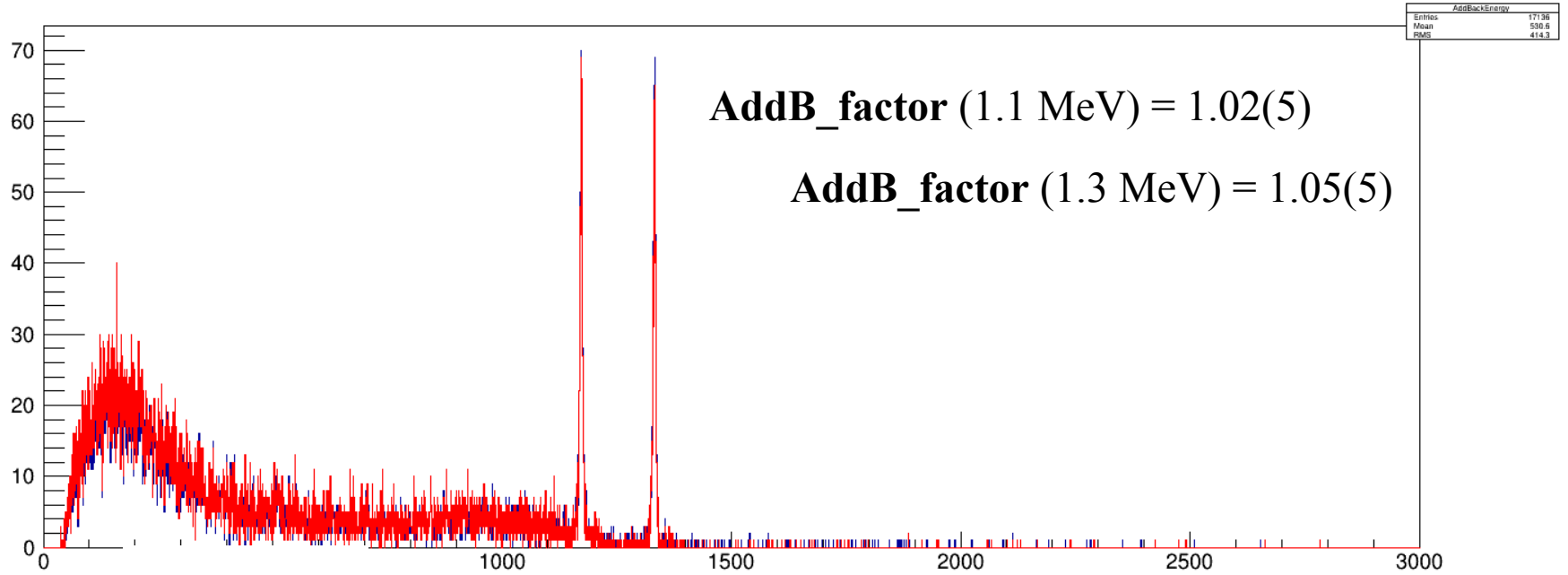


To make it easy : only core (E0) energies are considered. No Tracking but a simple AddBack procedure using neighboring cores **AddB_factor** = Int(AddB)/Int(Single)

AGATA crystals are not in common dead time



AddBackEnergy Total input rate in GTP = 1.6 MHz



Survey of fission runs

//**E680** – Fission run with [20-24] cores in compact configuration (-88.5 mm)

Rate was ~ 36 kHz/core RiseT = 5 μ s \Rightarrow 25% rejection expected

No GGP, No losses in the GTP from elog entries run 184, 173

$^{100}\text{Zr} \rightarrow \varepsilon(351.9 \text{ keV})$ from $\gamma\gamma$, Tracked = 6.09(8)% Addback = 6.0(1) %

High multiplicity G4 says OFT=7.7% and AddB 8.1% \rightarrow **Can be explained only from pileup**

//**E669**– Fission run with [21-24] cores in intermediate configuration (-52mm)

Rate was ~ 20 kHz/core, RiseT = 5 μ s \Rightarrow 15% losses rejection expected

No GGP, No losses in the GTP from elog entries run 208, 193

$^{86}\text{Se} \rightarrow \varepsilon(868 \text{ keV})$ from $\gamma\gamma$, Tracked = 4.5%

4 γ -rays cascade G4 says OFT=5.2% \rightarrow **Can be explained only from pileup**

//**E661** – Fission run with 32 cores in compact (-100 mm)

Losses **explained with the compact configuration, pileup, GGP losses and GTP losses**

//**E706** – Fission run with 35 cores in nominal

Rate was 20 kHz/core RiseT = 5 μ s \Rightarrow 15% losses rejection expected

GGP; measured losses are 11% from elog run 126 (in agreement with the measurement in source)

$^{100}\text{Zr} \rightarrow \varepsilon(351.9 \text{ keV})$ from $\gamma\gamma$, Tracked = 5.8(6)%

High multiplicity G4 says OFT = 7.1% , Pile-up included \Rightarrow 6%, GTP included \Rightarrow 5.4%

- ✓ Source efficiency can be affected by hardware status
- ✓ The efficiency measurement during the CAT should be a standard measurement if we want to understand our experimental efficiencies.
- ✓ The G4 geometry must take this into account

In-beam with high rate

- ✓ Brut force efficiency vs multiplicity effect should be look carefully in the choice of the nominal vs compact configuration
- ✓ Pile-up rejection matters
- ✓ The GGP time out has been corrected
- ✓ Some GTS limitations at high load deserve more studies

There are additional backpressure effects when GGP are added to the ATCA for a validation rate > 1.5 kHz/core that need further investigations

→ This do not affect yet the in-beam/source data where run at $\sim 200-300$ Hz/core validation rate


```

Aurora: CHANNEL UP      Input: RUH      Sort: RUH      t=100 k=0.9  V5      h: help
clock ..... 15.909.187.014.154 100.00 M      event number ..... 3.984.188.218 30.24 K
input trigger ..... 8.933.831.756 39.63 K
input idle ..... 1.128.493.529.204 7.09 M
sort trigger ..... 8.933.770.762 39.63 K
sort idle ..... 626.577.538.457 3.94 M
sumbus trigger ..... 8.831.544.823 39.38 K
sumbus idle ..... 614.652.478.336 3.89 M
sumbus under min ..... 0 0.00
transition ..... 7.926.244.222 30.24 K

threshold not reached ..... 0 0.00
threshold reached ..... 8.831.544.823 39.38 K

sumbus trigger ..... 0 0.00
sumbus idle ..... 629.533.341.940 3.96 M
sumbus under min ..... 0 0.00
transition ..... 0 0.00

threshold not reached ..... 0 0.00
threshold reached ..... 0 0.00

event number ..... 3.984.188.218 30.24 K
output reject ..... 1.244.442 8.13
output validate ..... 8.830.300.381 39.38 K

gate reject ..... 1.244.442 8.13
gate validate ..... 8.830.300.381 39.38 K

threshold equal ..... 7.926.244.222 30.24 K

gate reject ..... 0 0.00
gate validate ..... 0 0.00

threshold equal ..... 0 0.00
    
```

Is Equal to Sum CFD (39 kHz)

100% GTS validation

60Co source with 1.5 kHz/Core

00A	going	1.2 k	5k/s
00B	going	1.2 k	5k/s
00C	going	1.2 k	5k/s
01A	GOING	1.2 k	5k/s
01B	GOING	1.2 k	5k/s
01C	GOING	1.2 k	5k/s
02A	going	1.3 k	5k/s
02B	going	1.3 k	5k/s
02C	going	1.3 k	5k/s
03A	going	1.3 k	5k/s
03B	going	1.3 k	5k/s
03C	going	1.3 k	5k/s
04A	going	1.2 k	5k/s
04B	going	1.3 k	5k/s
04C	going	1.2 k	5k/s
05A	going	1.3 k	5k/s
05B	GOING	1.2 k	5k/s
05C	GOING	1.2 k	5k/s
09B	going	1.3 k	5k/s
09C	GOING	1.3 k	5k/s
10A	going	1.4 k	5k/s
10B	going	1.4 k	5k/s
10C	going	1.3 k	5k/s
11A	GOING	1.3 k	5k/s
11B	GOING	1.4 k	5k/s
11C	GOING	1.3 k	5k/s
12A	going	1.3 k	5k/s
12B	going	1.4 k	5k/s
12C	going	1.3 k	5k/s
13A	going		5k/s
13B	going		5k/s
13C	going		5k/s
14A	going	1.3 k	5k/s
14B	GOING	1.3 k	5k/s
14C	GOING	1.3 k	5k/s

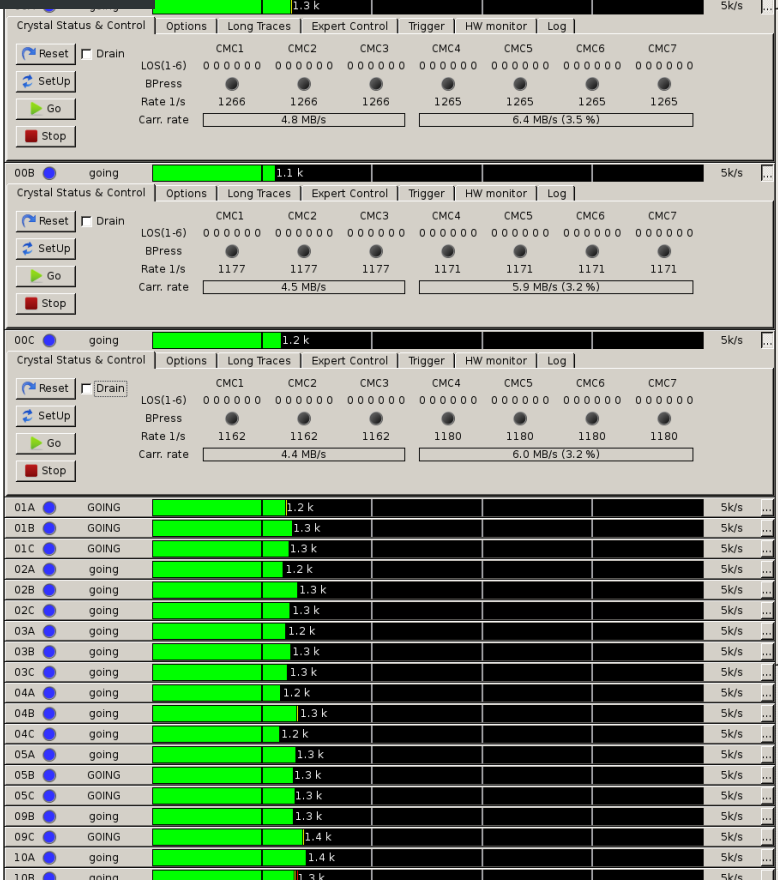
```

Aurora: CHANNEL UP      Input: RUN      Sort: RUN      t=100 k=0.9  V5      h: help]
clock ..... 15.924.048.699.115 100.00 M      event number ..... 3.988.481.995 30.26 K
input trigger ..... 8.939.448.724 39.75 K      output reject ..... 1.245.444 7.51 K
input idle ..... 1.129.547.723.473 7.09 M      output validate ..... 8.835.871.008 39.40 K
sort trigger ..... 8.939.387.648 39.75 K
sort idle ..... 627.166.088.371 3.95 M
sumbus trigger ..... 8.837.116.452 39.41 K
sumbus idle ..... 615.233.016.559 3.89 M
sumbus under min ..... 0 0.00
transition ..... 7.930.537.999 30.26 K
threshold not reached ..... 0 0.00
threshold reached ..... 8.837.116.452 39.41 K
sumbus trigger ..... 0 0.00
sumbus idle ..... 630.123.021.806 3.96 M
sumbus under min ..... 0 0.00
transition ..... 0 0.00
threshold not reached ..... 0 0.00
threshold reached ..... 0 0.00
gate reject ..... 1.245.444 7.51 K
gate validate ..... 8.835.871.008 39.40 K
threshold equal ..... 7.930.537.999 30.26 K
gate reject ..... 0 0.00
gate validate ..... 0 0.00
threshold equal ..... 0 0.00

```

Is Equal to Sum CFD (39 kHz)

Everybody in GO and 3 ATCA Drain OFF – femul readout with cdat – bdat-No PSA – adf – histo



Crystal Status & Control | Options | Long Traces | Expert Control | Trigger | HW monitor | Log

00B going 1.1 k 5k/s

Crystal Status & Control | Options | Long Traces | Expert Control | Trigger | HW monitor | Log

00C going 1.2 k 5k/s

Crystal Status & Control | Options | Long Traces | Expert Control | Trigger | HW monitor | Log

01A GOING 1.2 k 5k/s

01B GOING 1.3 k 5k/s

01C GOING 1.3 k 5k/s

02A going 1.2 k 5k/s

02B going 1.3 k 5k/s

02C going 1.3 k 5k/s

03A going 1.2 k 5k/s

03B going 1.3 k 5k/s

03C going 1.3 k 5k/s

04A going 1.2 k 5k/s

04B going 1.3 k 5k/s

04C going 1.2 k 5k/s

05A going 1.3 k 5k/s

05B GOING 1.3 k 5k/s

05C GOING 1.3 k 5k/s

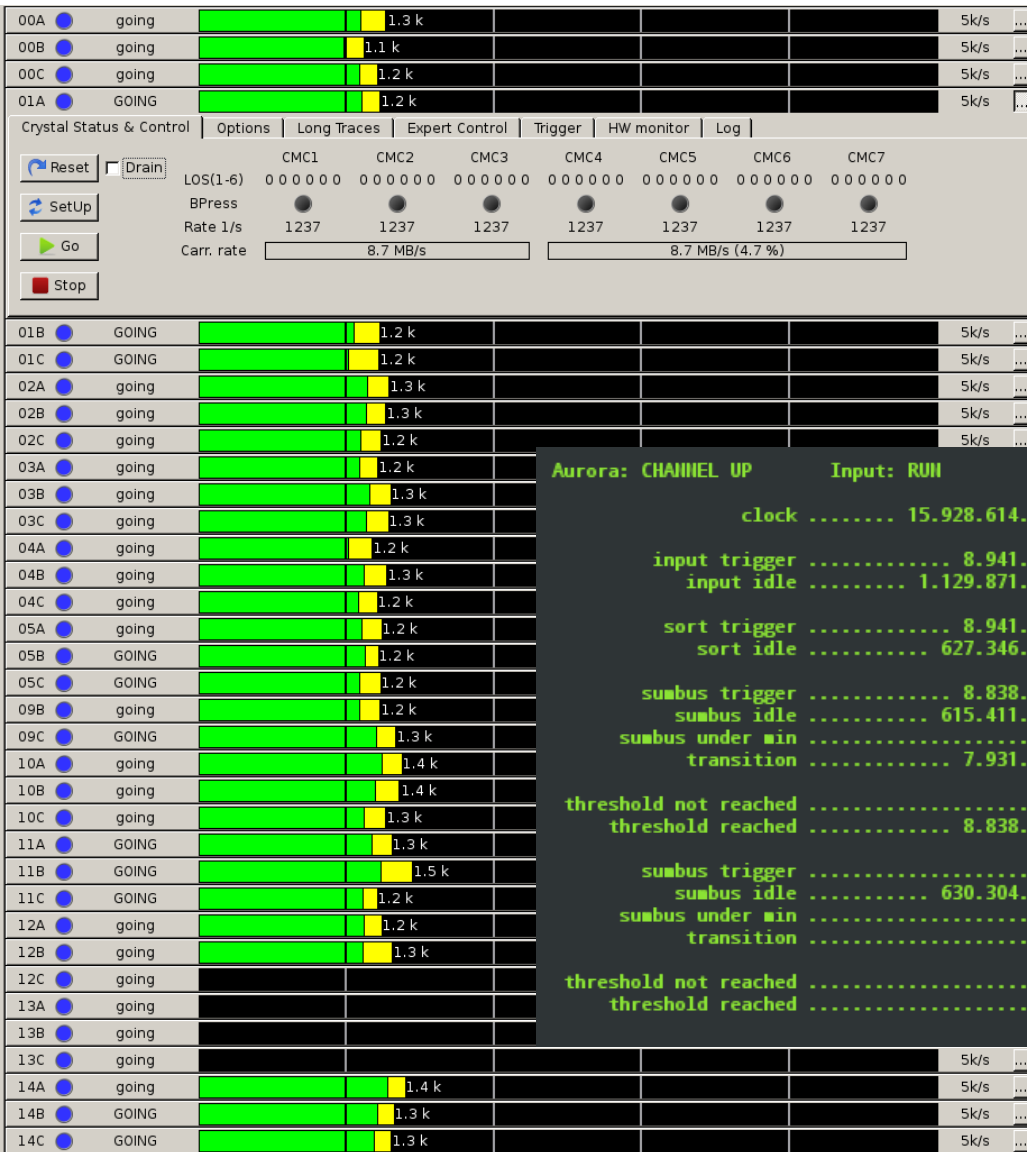
09B going 1.3 k 5k/s

09C GOING 1.4 k 5k/s

10A going 1.4 k 5k/s

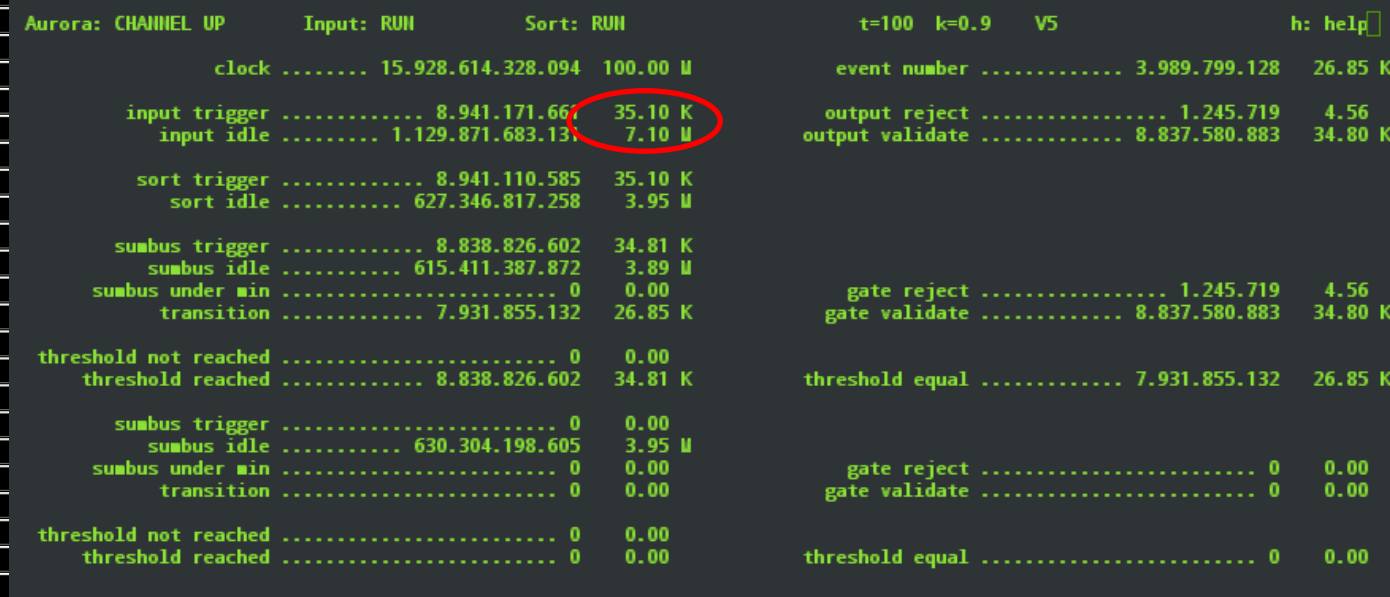
10B going 1.3 k 5k/s

100% GTS validation

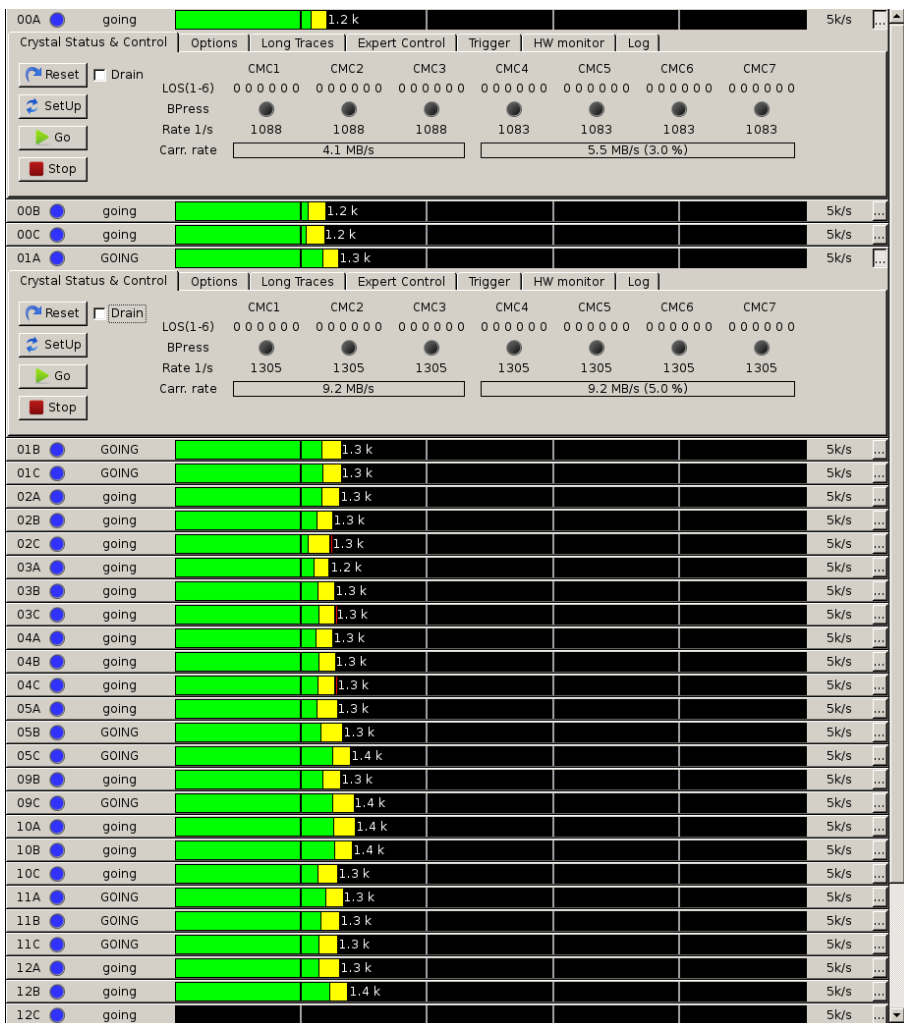


All channel have losses !!! GGP and ATCA

Less than Sum CFD (39 kHz) => Missing request to the Trigger Input



Everybody in GO and 1 GGP Drain OFF, 1 ATCA drain OFF – femul readout with cdat –
bdat-No PSA – adf -histo



Same losses has before

No rejection when All ATCA are drain off and all GGP drain ON
 as soon as there is at least 1 GGP, we have losses in the GTS when rate > 1kHz validation

50 % rejection !!!!! Half of the GTS request are not reaching the TP (CFD = 39 kHz)

Same result in exclude Trigger Processor.

00A	going		1.3 k	5k/s
00B	going		1.2 k	5k/s
00C	going		1.2 k	5k/s
01A	GOING		1.2 k	5k/s
01B	GOING		1.3 k	5k/s
01C	GOING		1.3 k	5k/s
02A	going		1.3 k	5k/s
02B	going		1.3 k	5k/s
02C	going		1.3 k	5k/s
03A	going		1.2 k	5k/s
03B	going		1.3 k	5k/s
03C	going		1.3 k	5k/s
04A	going		1.2 k	5k/s
04B	going		1.3 k	5k/s
04C	going		1.2 k	5k/s
05A	going		1.3 k	5k/s
05B	GOING		1.3 k	5k/s
05C	GOING		1.3 k	5k/s
09B	going		1.3 k	5k/s
09C	GOING		1.3 k	5k/s
10A	going		1.4 k	5k/s
10B	going		1.4 k	5k/s
10C	going		1.3 k	5k/s
11A	GOING		1.3 k	5k/s
11B	GOING		1.4 k	5k/s
11C	GOING		1.3 k	5k/s
12A	going		1.4 k	5k/s
12B	going		1.4 k	5k/s
12C	going			5k/s
13A	going			5k/s
13B	going			5k/s
13C	going			5k/s
14A	going		1.3 k	5k/s
14B	GOING		1.4 k	5k/s
14C	GOING		1.3 k	5k/s

```

Aurora: CHANNEL UP      Input: RUN      Sort: RUN      t=100 k=0.9 V5      h: help
      clock ..... 15.964.629.739.702 100.00 u      event number ..... 3.995.567.141 14.74
      input trigger ..... 8.948.715.531 19.20 K      output reject ..... 1.246.913 1.05
      input idle ..... 1.132.784.072.401 8.87 u      output validate ..... 8.845.068.362 19.14
      sort trigger ..... 8.948.654.448 19.20 K
      sort idle ..... 628.745.665.540 3.83 u
      sumbus trigger ..... 8.846.315.275 19.14 K
      sumbus idle ..... 616.800.160.474 3.81 u
      sumbus under min ..... 0 0.00      gate reject ..... 1.246.913 1.05
      transition ..... 7.937.623.145 14.74 K      gate validate ..... 8.845.068.362 19.14
      threshold not reached ..... 0 0.00
      threshold reached ..... 8.846.315.275 19.14 K      threshold equal ..... 7.937.623.145 14.74
      sumbus trigger ..... 0 0.00
      sumbus idle ..... 631.705.194.699 3.84 u
      sumbus under min ..... 0 0.00      gate reject ..... 0 0.00
      transition ..... 0 0.00      gate validate ..... 0 0.00
      threshold not reached ..... 0 0.00
      threshold reached ..... 0 0.00      threshold equal ..... 0 0.00
    
```

```

Aurora: CHANNEL UP      Input: RUH      Sort: RUH      t=100 k=0.9 V5      h: help
clock ..... 16.355.813.636.022 100.00 M      event number ..... 4.042.418.325 2.09 K
input trigger ..... 9.009.273.594 2.40 K      output reject ..... 1.255.862 0.02
input idle ..... 1.167.484.838.811 8.86 M      output validate ..... 8.905.214.459 2.40 K
sort trigger ..... 9.009.212.238 2.40 K
sort idle ..... 643.687.739.365 4.11 M
sumbus trigger ..... 8.906.470.321 2.40 K
sumbus idle ..... 631.664.115.619 4.10 M
sumbus under min ..... 0 0.00      gate reject ..... 1.255.862 0.02
transition ..... 7.984.474.329 2.09 K      gate validate ..... 8.905.214.459 2.40 K
threshold not reached ..... 0 0.00      threshold equal ..... 7.984.474.329 2.09 K
threshold reached ..... 8.906.470.321 2.40 K
sumbus trigger ..... 0 0.00
sumbus idle ..... 646.666.962.630 4.11 M
sumbus under min ..... 0 0.00      gate reject ..... 0 0.00
transition ..... 0 0.00      gate validate ..... 0 0.00
threshold not reached ..... 0 0.00      threshold equal ..... 0 0.00
threshold reached ..... 0 0.00

```

```

scgw3 | 0$ topology 1$ server_carrier 2$ cgui 3-$ carrier_setup 4$ midas_digitizers (5*$TriggerProc) 6$ carrier_WK 7$ MID

```

```

resync: dom 0 sub 20 (brd 1 adc 1) 254789 s
resync: dom 0 sub 21 (brd 1 adc 1) 14234 s
resync: dom 0 sub 21 (brd 1 adc 1) 9109 s
resync: dom 0 sub 21 (brd 1 adc 1) 43957 s
resync: dom 0 sub 21 (brd 1 adc 1) 77699 s
resync: dom 0 sub 4 (brd 0 adc 3) 670892 s
resync: dom 0 sub 21 (brd 1 adc 1) 50293 s
resync: dom 0 sub 21 (brd 1 adc 1) 43171 s
resync: dom 0 sub 21 (brd 1 adc 1) 48622 s
resync: dom 0 sub 21 (brd 1 adc 1) 12728 s
resync: dom 0 sub 21 (brd 1 adc 1) 69362 s
resync: dom 0 sub 31 (brd 2 adc 2) 1076428 s
resync: dom 0 sub 21 (brd 1 adc 1) 62725 s
resync: dom 0 sub 21 (brd 1 adc 1) 38719 s
resync: dom 0 sub 21 (brd 1 adc 1) 37126 s

```

```

resync: dom 0 sub 14 (brd 1 adc 4) 945 s
resync: dom 0 sub 25 (brd 2 adc 5) 3048 s
resync: dom 0 sub 14 (brd 1 adc 4) 2612 s
resync: dom 0 sub 14 (brd 1 adc 4) 58 s
resync: dom 0 sub 14 (brd 1 adc 4) 954 s
resync: dom 0 sub 14 (brd 1 adc 4) 1472 s
resync: dom 0 sub 14 (brd 1 adc 4) 116 s
resync: dom 0 sub 14 (brd 1 adc 4) 474 s
resync: dom 0 sub 14 (brd 1 adc 4) 373 s
resync: dom 0 sub 14 (brd 1 adc 4) 686 s
resync: dom 0 sub 14 (brd 1 adc 4) 928 s
resync: dom 0 sub 14 (brd 1 adc 4) 1033 s
resync: dom 0 sub 25 (brd 2 adc 5) 6628 s
resync: dom 0 sub 11 (brd 0 adc 0) 15039 s
resync: dom 0 sub 25 (brd 2 adc 5) 5715 s
resync: dom 0 sub 25 (brd 2 adc 5) 623 s
resync: dom 0 sub 14 (brd 1 adc 4) 7241 s
resync: dom 0 sub 5 (brd 0 adc 3) 734 s
resync: dom 0 sub 5 (brd 0 adc 3) 2167 s
resync: dom 0 sub 5 (brd 0 adc 3) 612 s
resync: dom 0 sub 5 (brd 0 adc 3) 79 s
resync: dom 0 sub 5 (brd 0 adc 3) 2373 s
resync: dom 0 sub 5 (brd 0 adc 3) 426 s
resync: dom 0 sub 5 (brd 0 adc 3) 520 s
resync: dom 0 sub 5 (brd 0 adc 3) 1422 s
resync: dom 0 sub 5 (brd 0 adc 3) 2004 s
resync: dom 0 sub 5 (brd 0 adc 3) 131 s
resync: dom 0 sub 5 (brd 0 adc 3) 1886 s
resync: dom 0 sub 5 (brd 0 adc 3) 10 s
resync: dom 0 sub 5 (brd 0 adc 3) 89 s
resync: dom 0 sub 5 (brd 0 adc 3) 269 s
resync: dom 0 sub 5 (brd 0 adc 3) 7645 s
resync: dom 0 sub 5 (brd 0 adc 3) 4198 s
resync: dom 0 sub 5 (brd 0 adc 3) 653 s
resync: dom 0 sub 5 (brd 0 adc 3) 5321 s

```

Global Status & Control

going 2.7 k [10k/s]

Crystals Status & Control | Options | Long Traces | Expert Control | View

Show Validations Show Rejections Show Missing

average average average
 total total total
 maximum maximum maximum
 minimum minimum minimum

Per Crystal Status & Control

00A	going		70				1000/s
00B	going		74				1000/s
00C	going		63				1000/s
01A	GOING		62				1000/s
01B	GOING		71				1000/s
01C	GOING		79				1000/s
02A	going		59				1000/s
02B	going		56				1000/s
02C	going		66				1000/s
03A	going		62				1000/s
03B	going		72				1000/s
03C	going		60				1000/s
04A	going		57				1000/s
04B	going		62				1000/s
04C	going		81				1000/s
05A	going		68				1000/s
05B	GOING		63				1000/s
05C	GOING		75				1000/s
09B	going		78				1000/s
09C	GOING		99				1000/s
10A	going		109				1000/s
10B	going		121				1000/s
10C	going		60				1000/s
11A	GOING		130				1000/s
11B	GOING		219				1000/s
11C	GOING		71				1000/s
12A	going		99				1000/s
12B	going		107				1000/s
12C	going						1000/s
13A	going						1000/s
13B	going						1000/s
13C	going						1000/s
14A	going		74				1000/s
14B	GOING		97				1000/s
14C	GOING		164				1000/s

femul-cdat-bdat-noPSA-histo room background
100% validation

```

Aurora: CHANNEL UP      Input: RUN      Sort: RUN      t=100 k=0.9 V5      h: help
clock ..... 16.319.611.024.925 100.00 M      event number ..... 4.040.858.689 7.46 K
input trigger ..... 9.007.343.688 9.42 K      output reject ..... 1.255.560 1.76
input idle ..... 1.164.276.730.146 8.86 M      output validate ..... 8.903.287.579 9.39 K
sort trigger ..... 9.007.282.333 9.42 K
sort idle ..... 642.305.685.320 3.81 M
subbus trigger ..... 8.904.543.139 9.39 K
subbus idle ..... 630.284.536.288 3.80 M
subbus under min ..... 0 0.00      gate reject ..... 1.255.560 1.76
transition ..... 7.982.914.693 7.46 K      gate validate ..... 8.903.287.579 9.39 K
threshold not reached ..... 0 0.00
threshold reached ..... 8.904.543.139 9.39 K      threshold equal ..... 7.982.914.693 7.46 K
subbus trigger ..... 0 0.00
subbus idle ..... 645.284.360.609 3.81 M
subbus under min ..... 0 0.00      gate reject ..... 0 0.00
transition ..... 0 0.00      gate validate ..... 0 0.00
threshold not reached ..... 0 0.00
threshold reached ..... 0 0.00      threshold equal ..... 0 0.00

```

```

scgw3 | 0$ topology 1$ server_carrier 2$ cgui 3-$ carrier_setup 4$ midas_digitizers (5*$TriggerProc) 6$ carrier_WK 7$ MID
resync: dom 0 sub 20 (brd 1 adc 1) 254789 s
resync: dom 0 sub 21 (brd 1 adc 1) 271648 s
resync: dom 0 sub 21 (brd 1 adc 1) 14234 s
resync: dom 0 sub 21 (brd 1 adc 1) 9109 s
resync: dom 0 sub 21 (brd 1 adc 1) 43957 s
resync: dom 0 sub 21 (brd 1 adc 1) 77699 s
resync: dom 0 sub 4 (brd 0 adc 3) 670892 s
resync: dom 0 sub 21 (brd 1 adc 1) 50293 s
resync: dom 0 sub 21 (brd 1 adc 1) 43171 s
resync: dom 0 sub 21 (brd 1 adc 1) 48622 s
resync: dom 0 sub 21 (brd 1 adc 1) 12728 s
resync: dom 0 sub 21 (brd 1 adc 1) 69362 s
resync: dom 0 sub 31 (brd 2 adc 2) 1076428 s
resync: dom 0 sub 21 (brd 1 adc 1) 62725 s
resync: dom 0 sub 21 (brd 1 adc 1) 38719 s
resync: dom 0 sub 21 (brd 1 adc 1) 37126 s
resync: dom 0 sub 14 (brd 1 adc 4) 945 s
resync: dom 0 sub 25 (brd 2 adc 5) 3048 s
resync: dom 0 sub 14 (brd 1 adc 4) 2612 s
resync: dom 0 sub 14 (brd 1 adc 4) 58 s
resync: dom 0 sub 14 (brd 1 adc 4) 954 s
resync: dom 0 sub 14 (brd 1 adc 4) 1472 s
resync: dom 0 sub 14 (brd 1 adc 4) 116 s
resync: dom 0 sub 14 (brd 1 adc 4) 474 s
resync: dom 0 sub 14 (brd 1 adc 4) 373 s
resync: dom 0 sub 14 (brd 1 adc 4) 686 s
resync: dom 0 sub 14 (brd 1 adc 4) 928 s
resync: dom 0 sub 14 (brd 1 adc 4) 1033 s
resync: dom 0 sub 25 (brd 2 adc 5) 6628 s
resync: dom 0 sub 11 (brd 0 adc 0) 15039 s
resync: dom 0 sub 25 (brd 2 adc 5) 5715 s
resync: dom 0 sub 25 (brd 2 adc 5) 623 s
resync: dom 0 sub 14 (brd 1 adc 4) 7241 s
resync: dom 0 sub 5 (brd 0 adc 3) 734 s
resync: dom 0 sub 5 (brd 0 adc 3) 2167 s
resync: dom 0 sub 5 (brd 0 adc 3) 612 s
resync: dom 0 sub 5 (brd 0 adc 3) 79 s
resync: dom 0 sub 5 (brd 0 adc 3) 2373 s
resync: dom 0 sub 5 (brd 0 adc 3) 426 s
resync: dom 0 sub 5 (brd 0 adc 3) 520 s
resync: dom 0 sub 5 (brd 0 adc 3) 1422 s
resync: dom 0 sub 5 (brd 0 adc 3) 2004 s
resync: dom 0 sub 5 (brd 0 adc 3) 131 s
resync: dom 0 sub 5 (brd 0 adc 3) 1886 s
resync: dom 0 sub 5 (brd 0 adc 3) 10 s
resync: dom 0 sub 5 (brd 0 adc 3) 89 s
resync: dom 0 sub 5 (brd 0 adc 3) 269 s
resync: dom 0 sub 5 (brd 0 adc 3) 7645 s
resync: dom 0 sub 5 (brd 0 adc 3) 4198 s
resync: dom 0 sub 5 (brd 0 adc 3) 653 s
resync: dom 0 sub 5 (brd 0 adc 3) 5321 s

```

Global Status & Control

going 8.0 k [10k/s]

Crystals Status & Control | Options | Long Traces | Expert Control | View

Show Validations
 average
 total
 maximum Scale
 minimum

Show Rejections
 average
 total
 maximum Scale
 minimum

Show Missing
 average
 total
 maximum Scale
 minimum

Per Crystal Status & Control

00A	going		264	1000/s
00B	going		223	1000/s
00C	going		195	1000/s
01A	GOING		225	1000/s
01B	GOING		227	1000/s
01C	GOING		214	1000/s
02A	going		279	1000/s
02B	going		305	1000/s
02C	going		251	1000/s
03A	going		332	1000/s
03B	going		331	1000/s
03C	going		322	1000/s
04A	going		305	1000/s
04B	going		258	1000/s
04C	going		270	1000/s
05A	going		163	1000/s
05B	GOING		184	1000/s
05C	GOING		188	1000/s
09B	going		230	1000/s
09C	GOING		219	1000/s
10A	going		275	1000/s
10B	going		236	1000/s
10C	going		247	1000/s
11A	GOING		233	1000/s
11B	GOING		373	1000/s
11C	GOING		290	1000/s
12A	going		244	1000/s
12B	going		277	1000/s
12C	going			1000/s
13A	going			1000/s
13B	going			1000/s
13C	going			1000/s
14A	going		164	1000/s
14B	GOING		210	1000/s
14C	GOING		301	1000/s

femul-cdat-bdat-NoPSA- Histo-300Hz

```

File Edit View Search Terminal Help
Aurora: CHANNEL_UP Input: RUN Sort: RUN t=100 k=0.9 V5 h: help
clock ..... 16.296.381.688.507 100.00 U event number ..... 4.038.737.292 15.47 K
input trigger ..... 9.004.688.911 19.48 K output reject ..... 1.255.191 2.92
input idle ..... 1.162.217.156.981 8.87 U output validate ..... 8.900.644.625 19.34 K
sort trigger ..... 9.004.627.564 19.48 K
sort idle ..... 641.414.100.537 3.87 U
subbus trigger ..... 8.901.899.816 19.34 K
subbus idle ..... 629.396.165.876 3.84 U
subbus under min ..... 0 0.00 gate reject ..... 1.255.191 2.92
transition ..... 7.980.793.296 15.47 K gate validate ..... 8.900.644.625 19.34 K
threshold not reached ..... 0 0.00
threshold reached ..... 8.901.899.816 19.34 K threshold equal ..... 7.980.793.296 15.47 K
subbus trigger ..... 0 0.00
subbus idle ..... 644.391.785.473 3.87 U gate reject ..... 0 0.00
subbus under min ..... 0 0.00 gate validate ..... 0 0.00
transition ..... 0 0.00
threshold not reached ..... 0 0.00
threshold reached ..... 0 0.00 threshold equal ..... 0 0.00

```

```

scgpx3 | 05 topology 15 server-carrier 25 cpu1 3-5 carrier-setup 45 midas_digitizers (5*$TriggerProc) 65 carrier_WK 75 UID
resync: dom 0 sub 20 (brd 1 adc 1) 254789 s
resync: dom 0 sub 21 (brd 1 adc 1) 271648 s
resync: dom 0 sub 21 (brd 1 adc 1) 14234 s
resync: dom 0 sub 21 (brd 1 adc 1) 9109 s
resync: dom 0 sub 21 (brd 1 adc 1) 43957 s
resync: dom 0 sub 21 (brd 1 adc 1) 77699 s
resync: dom 0 sub 4 (brd 0 adc 3) 670892 s
resync: dom 0 sub 21 (brd 1 adc 1) 50293 s
resync: dom 0 sub 21 (brd 1 adc 1) 43171 s
resync: dom 0 sub 21 (brd 1 adc 1) 48622 s
resync: dom 0 sub 21 (brd 1 adc 1) 12728 s
resync: dom 0 sub 21 (brd 1 adc 1) 69362 s
resync: dom 0 sub 31 (brd 2 adc 2) 1076429 s
resync: dom 0 sub 21 (brd 1 adc 1) 62725 s
resync: dom 0 sub 21 (brd 1 adc 1) 38719 s
resync: dom 0 sub 21 (brd 1 adc 1) 37126 s
resync: dom 0 sub 5 (brd 0 adc 3) 734 s
resync: dom 0 sub 5 (brd 0 adc 3) 2167 s
resync: dom 0 sub 5 (brd 0 adc 3) 612 s
resync: dom 0 sub 5 (brd 0 adc 3) 79 s
resync: dom 0 sub 5 (brd 0 adc 3) 2373 s
resync: dom 0 sub 5 (brd 0 adc 3) 426 s
resync: dom 0 sub 5 (brd 0 adc 3) 529 s
resync: dom 0 sub 5 (brd 0 adc 3) 1422 s
resync: dom 0 sub 5 (brd 0 adc 3) 2004 s
resync: dom 0 sub 5 (brd 0 adc 3) 131 s
resync: dom 0 sub 5 (brd 0 adc 3) 1886 s
resync: dom 0 sub 5 (brd 0 adc 3) 10 s
resync: dom 0 sub 5 (brd 0 adc 3) 89 s
resync: dom 0 sub 5 (brd 0 adc 3) 269 s
resync: dom 0 sub 5 (brd 0 adc 3) 7645 s
resync: dom 0 sub 5 (brd 0 adc 3) 4198 s
resync: dom 0 sub 5 (brd 0 adc 3) 653 s
resync: dom 0 sub 5 (brd 0 adc 3) 5321 s

```

carrier LSC GUI

Global Status & Control

going █ █ █ 34.8 k [100k/s]

Crystals Status & Control | Options | Long Traces | Expert Control | View

Show Validations Show Rejections Show Missing

average total maximum minimum
 average total maximum minimum
 average total maximum minimum

Per Crystal Status & Control

Crystal	Status	Progress	Rate	Unit
00A	going	█ █ █	1.1 k	5k/s
00B	going	█ █ █	1.0 k	5k/s
00C	going	█ █ █	1.1 k	5k/s
01A	GOING	█ █ █	0.76	5k/s
01B	GOING	█ █ █	1.1 k	5k/s
01C	GOING	█ █ █	1.0 k	5k/s
02A	going	█ █ █	1.0 k	5k/s
02B	going	█ █ █	1.0 k	5k/s
02C	going	█ █ █	1.1 k	5k/s
03A	going	█ █ █	1.0 k	5k/s
03B	going	█ █ █	1.1 k	5k/s
03C	going	█ █ █	1.0 k	5k/s
04A	going	█ █ █	1.0 k	5k/s
04B	going	█ █ █	1.1 k	5k/s
04C	going	█ █ █	1.1 k	5k/s
05A	going	█ █ █	1.3 k	5k/s
05B	GOING	█ █ █	1.1 k	5k/s
05C	GOING	█ █ █	1.2 k	5k/s
09B	going	█ █ █	1.1 k	5k/s
09C	GOING	█ █ █	1.2 k	5k/s
10A	going	█ █ █	1.3 k	5k/s
10B	going	█ █ █	1.2 k	5k/s
10C	going	█ █ █	1.1 k	5k/s
11A	GOING	█ █ █	1.2 k	5k/s
11B	GOING	█ █ █	1.2 k	5k/s
11C	GOING	█ █ █	1.2 k	5k/s
12A	going	█ █ █	1.1 k	5k/s
12B	going	█ █ █	1.2 k	5k/s
12C	going	█ █ █		5k/s
13A	going	█ █ █		5k/s
13B	going	█ █ █		5k/s
13C	going	█ █ █		5k/s
14A	going	█ █ █	1.2 k	5k/s
14B	GOING	█ █ █	1.3 k	5k/s
14C	GOING	█ █ █	1.2 k	5k/s

femul-cdat-bdat-NoPSA- Histo-1KHz


```

Aurora: CHAMHIEL_UP      Input: RUH      Sort: RUH      t=100 k=0.9  V5      h: help

clock ..... 16.706.763.706.169 100.00 M      event number ..... 4.091.461.241 3.74 K
input trigger ..... 9.073.545.464 4.94 K      output reject ..... 1.265.537 2.03
input idle ..... 1.198.619.475.237 8.89 M      output validate ..... 8.969.013.548 4.89 K
sort trigger ..... 9.073.484.007 4.94 K
sort idle ..... 657.350.787.644 3.89 M
subbus trigger ..... 8.970.279.085 4.90 K
subbus idle ..... 645.241.743.099 3.88 M
subbus under win ..... 0 0.00
transition ..... 8.033.517.245 3.74 K
gate reject ..... 1.265.537 2.03
gate validate ..... 8.969.013.548 4.89 K
threshold not reached ..... 0 0.00
threshold reached ..... 8.970.279.085 4.90 K
threshold equal ..... 8.033.517.245 3.74 K
subbus trigger ..... 0 0.00
subbus idle ..... 690.348.700.015 3.89 M
subbus under win ..... 0 0.00
transition ..... 0 0.00
gate reject ..... 0 0.00
gate validate ..... 0 0.00
threshold not reached ..... 0 0.00
threshold reached ..... 0 0.00
threshold equal ..... 0 0.00
    
```

```

scgw2 |f 05 topology 15 server_carrier 25 cpui 3-5 carrier_setup 45 widas_digitizers (5*4TriggerProc) 65 carrier_WK 75 WID

resync: dom 0 sub 20 (brd 1 adc 1) 254789 s
resync: dom 0 sub 21 (brd 1 adc 1) 271648 s
resync: dom 0 sub 21 (brd 1 adc 1) 14234 s
resync: dom 0 sub 21 (brd 1 adc 1) 9109 s
resync: dom 0 sub 21 (brd 1 adc 1) 43957 s
resync: dom 0 sub 21 (brd 1 adc 1) 77699 s
resync: dom 0 sub 4 (brd 0 adc 3) 670892 s
resync: dom 0 sub 21 (brd 1 adc 1) 50293 s
resync: dom 0 sub 21 (brd 1 adc 1) 43171 s
resync: dom 0 sub 21 (brd 1 adc 1) 48622 s
resync: dom 0 sub 21 (brd 1 adc 1) 12728 s
resync: dom 0 sub 21 (brd 1 adc 1) 69362 s
resync: dom 0 sub 31 (brd 2 adc 2) 1076428 s
resync: dom 0 sub 21 (brd 1 adc 1) 62725 s
resync: dom 0 sub 21 (brd 1 adc 1) 38719 s
resync: dom 0 sub 21 (brd 1 adc 1) 37126 s

resync: dom 0 sub 5 (brd 0 adc 3) 612 s
resync: dom 0 sub 5 (brd 0 adc 3) 79 s
resync: dom 0 sub 5 (brd 0 adc 3) 2373 s
resync: dom 0 sub 5 (brd 0 adc 3) 426 s
resync: dom 0 sub 5 (brd 0 adc 3) 520 s
resync: dom 0 sub 5 (brd 0 adc 3) 1422 s
resync: dom 0 sub 5 (brd 0 adc 3) 2004 s
resync: dom 0 sub 5 (brd 0 adc 3) 131 s
resync: dom 0 sub 5 (brd 0 adc 3) 1886 s
resync: dom 0 sub 5 (brd 0 adc 3) 10 s
resync: dom 0 sub 5 (brd 0 adc 3) 89 s
resync: dom 0 sub 5 (brd 0 adc 3) 269 s
resync: dom 0 sub 5 (brd 0 adc 3) 7645 s
resync: dom 0 sub 5 (brd 0 adc 3) 4198 s
resync: dom 0 sub 5 (brd 0 adc 3) 653 s
resync: dom 0 sub 5 (brd 0 adc 3) 5221 s
resync: dom 0 sub 5 (brd 0 adc 3) 7409 s
resync: dom 0 sub 5 (brd 0 adc 3) 260 s
    
```

femul-cdat-bdat-NoPSA- Histo-1.5KHz

carrier LSC GUI

Global Status & Control

going 39.9 k [100k/s]

Crystals Status & Control | Options | Long Traces | Expert Control | View

Go Stop Drain Load Conf SetUp Reset

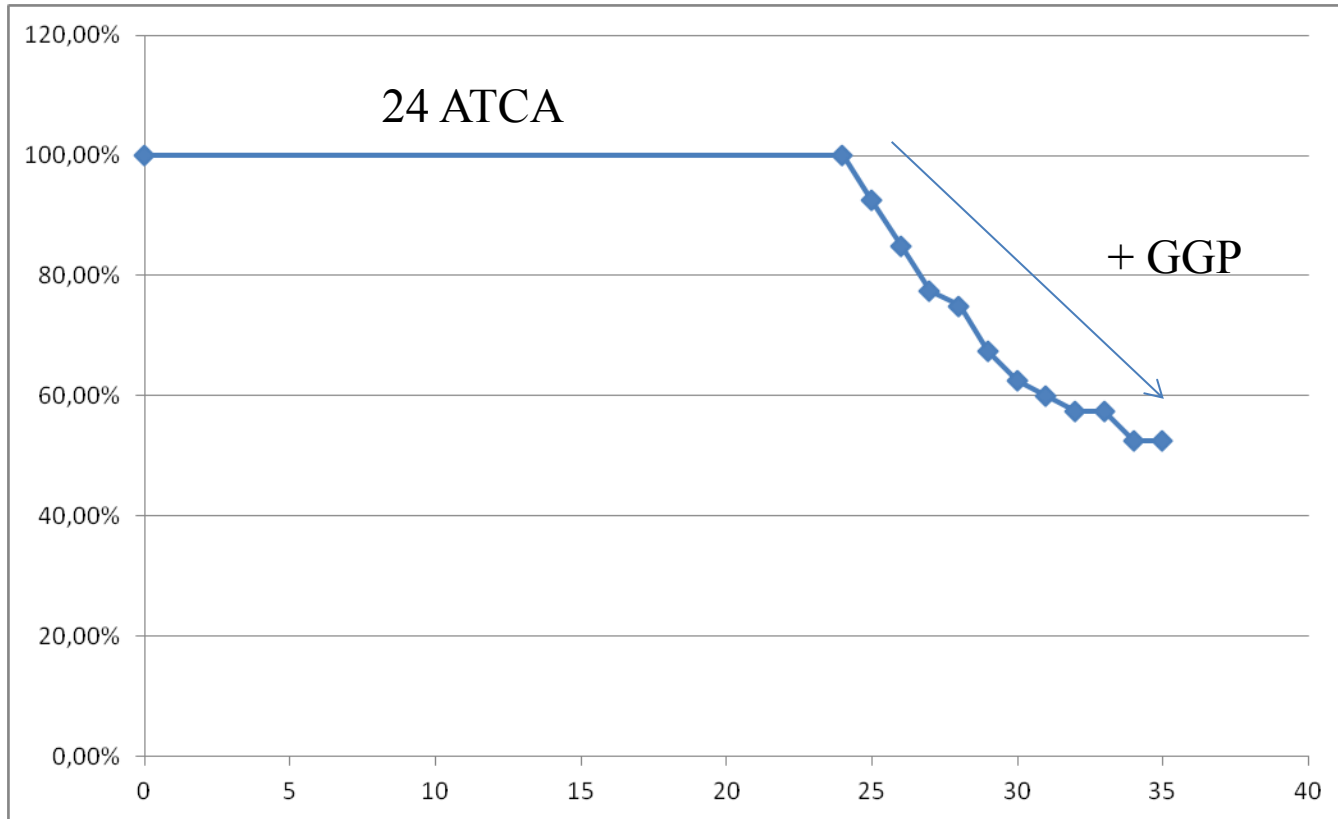
Per Crystal Status & Control

00A	going		1.2 k	5k/s
00B	going		1.1 k	5k/s
00C	going		1.2 k	5k/s
01A	GOING		1.2 k	5k/s
01B	GOING		1.3 k	5k/s
01C	GOING		1.1 k	5k/s
02A	going		1.3 k	5k/s
02B	going		1.3 k	5k/s
02C	going		1.3 k	5k/s
03A	going		1.3 k	5k/s
03B	going		1.4 k	5k/s
03C	going		1.5 k	5k/s
04A	going		1.3 k	5k/s
04B	going		1.2 k	5k/s
04C	going		1.2 k	5k/s
05A	going		1.3 k	5k/s
05B	GOING		1.2 k	5k/s
05C	GOING		1.2 k	5k/s
09B	going		1.3 k	5k/s
09C	GOING		1.4 k	5k/s
10A	going		1.4 k	5k/s
10B	going		1.4 k	5k/s
10C	going		1.3 k	5k/s
11A	GOING		1.3 k	5k/s
11B	GOING		1.4 k	5k/s
11C	GOING		1.4 k	5k/s
12A	going		1.3 k	5k/s
12B	going		1.4 k	5k/s
12C	going			5k/s
13A	going			5k/s
13B	going			5k/s
13C	going			5k/s
14A	going		1.3 k	5k/s
14B	GOING		1.3 k	5k/s
14C	GOING		1.3 k	5k/s



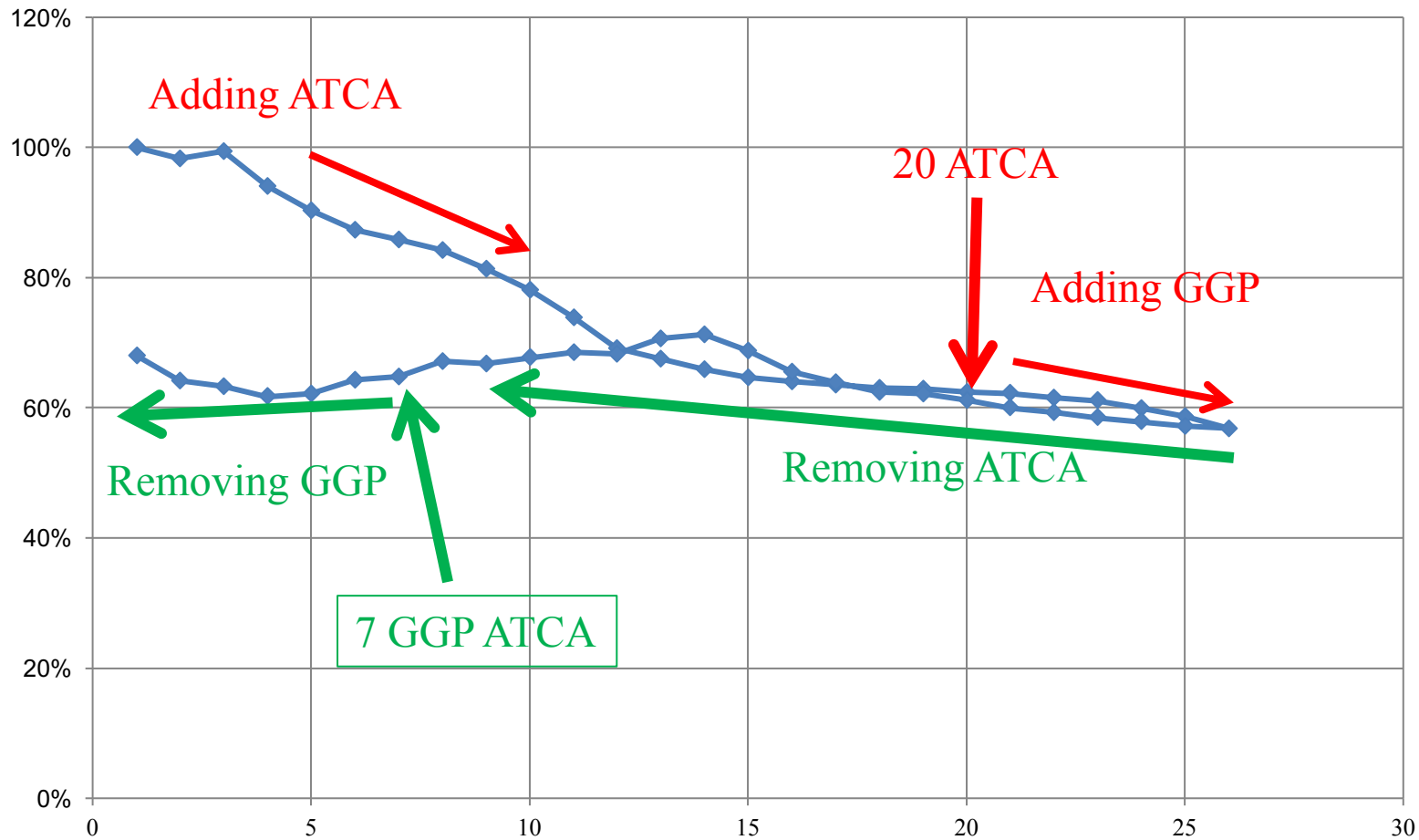
@1.5 kHz/core

Ratio Trigger Input / Sum CFD



#Channel Drain OFF

Input TP/ Sum CFD cgui



Keeping 1.5 kHz/core, changing the femul ouput

```

File Edit View Search Terminal Help
Aurora: CHAMBER_UP Input: RUN Sort: RMI t=100 k=0.9 V5 h: help
clock ..... 16.706.763.706.19 100.00 M event number ..... 4.091.461.241 3.74 K
input trigger ..... 9.073.545.164 4.94 K output reject ..... 1.265.537 2.03
input idle ..... 1.198.619.475.237 8.89 M output validate ..... 8.969.013.548 4.89 K
sort trigger ..... 9.073.484.107 4.94 K
sort idle ..... 657.350.787.64 3.89 M
subbus trigger ..... 8.970.279.085 4.90 K
subbus idle ..... 645.241.743.099 3.88 M
subbus under win ..... 0 0.00 gate reject ..... 1.265.537 2.03
transition ..... 8.033.517.245 3.74 K gate validate ..... 8.969.013.548 4.89 K
threshold not reached ..... 0 0.00 threshold equal ..... 8.033.517.245 3.74 K
threshold reached ..... 8.970.279.085 4.90 K
subbus trigger ..... 0 0.00
subbus idle ..... 690.348.700.015 3.89 M
subbus under win ..... 0 0.00 gate reject ..... 0 0.00
transition ..... 0 0.00 gate validate ..... 0 0.00
threshold not reached ..... 0 0.00 threshold equal ..... 0 0.00
threshold reached ..... 0 0.00

```

```

scgn2 |f 05 topology 15 server_carrier 25 cpui 3-5 carrier_setup 45 widas_digitizers (5*5TriggerProc) 65 carrier_WK 75 MID
resync: dom 0 sub 20 (brd 1 adc 1) 254789 s
resync: dom 0 sub 21 (brd 1 adc 1) 271648 s
resync: dom 0 sub 21 (brd 1 adc 1) 14234 s
resync: dom 0 sub 21 (brd 1 adc 1) 9109 s
resync: dom 0 sub 21 (brd 1 adc 1) 43957 s
resync: dom 0 sub 21 (brd 1 adc 1) 77699 s
resync: dom 0 sub 4 (brd 0 adc 3) 670892 s
resync: dom 0 sub 21 (brd 1 adc 1) 50293 s
resync: dom 0 sub 21 (brd 1 adc 1) 43171 s
resync: dom 0 sub 21 (brd 1 adc 1) 48622 s
resync: dom 0 sub 21 (brd 1 adc 1) 12728 s
resync: dom 0 sub 21 (brd 1 adc 1) 69362 s
resync: dom 0 sub 31 (brd 2 adc 2) 1076428 s
resync: dom 0 sub 21 (brd 1 adc 1) 62725 s
resync: dom 0 sub 21 (brd 1 adc 1) 38719 s
resync: dom 0 sub 21 (brd 1 adc 1) 37126 s
resync: dom 0 sub 14 (brd 1 adc 4) 2612 s
resync: dom 0 sub 14 (brd 1 adc 4) 58 s
resync: dom 0 sub 14 (brd 1 adc 4) 954 s
resync: dom 0 sub 14 (brd 1 adc 4) 1472 s
resync: dom 0 sub 14 (brd 1 adc 4) 116 s
resync: dom 0 sub 14 (brd 1 adc 4) 474 s
resync: dom 0 sub 14 (brd 1 adc 4) 373 s
resync: dom 0 sub 14 (brd 1 adc 4) 686 s
resync: dom 0 sub 14 (brd 1 adc 4) 928 s
resync: dom 0 sub 14 (brd 1 adc 4) 1033 s
resync: dom 0 sub 25 (brd 2 adc 5) 6628 s
resync: dom 0 sub 11 (brd 0 adc 0) 15039 s
resync: dom 0 sub 25 (brd 2 adc 5) 5715 s
resync: dom 0 sub 25 (brd 2 adc 5) 623 s
resync: dom 0 sub 14 (brd 1 adc 4) 7241 s
resync: dom 0 sub 11 (brd 0 adc 0) 6122 s
resync: dom 0 sub 14 (brd 1 adc 4) 5229 s
resync: dom 0 sub 5 (brd 0 adc 3) 612 s
resync: dom 0 sub 5 (brd 0 adc 3) 79 s
resync: dom 0 sub 5 (brd 0 adc 3) 2373 s
resync: dom 0 sub 5 (brd 0 adc 3) 426 s
resync: dom 0 sub 5 (brd 0 adc 3) 520 s
resync: dom 0 sub 5 (brd 0 adc 3) 1422 s
resync: dom 0 sub 5 (brd 0 adc 3) 2004 s
resync: dom 0 sub 5 (brd 0 adc 3) 131 s
resync: dom 0 sub 5 (brd 0 adc 3) 1886 s
resync: dom 0 sub 5 (brd 0 adc 3) 10 s
resync: dom 0 sub 5 (brd 0 adc 3) 89 s
resync: dom 0 sub 5 (brd 0 adc 3) 269 s
resync: dom 0 sub 5 (brd 0 adc 3) 7645 s
resync: dom 0 sub 5 (brd 0 adc 3) 4198 s
resync: dom 0 sub 5 (brd 0 adc 3) 653 s
resync: dom 0 sub 5 (brd 0 adc 3) 5221 s
resync: dom 0 sub 5 (brd 0 adc 3) 7409 s
resync: dom 0 sub 5 (brd 0 adc 3) 260 s

```

femul-cdat-bdat-NoPSA- Histo-1.5KHz

Global Status & Control

going [100k/s]

Crystals Status & Control | Options | Long Traces | Expert Control | View

Go Stop Drain Load Conf SetUp Reset

Per Crystal Status & Control

00A	going		1.2 k	5k/s
00B	going		1.1 k	5k/s
00C	going		1.2 k	5k/s
01A	GOING		1.2 k	5k/s
01B	GOING		1.3 k	5k/s
01C	GOING		1.1 k	5k/s
02A	going		1.3 k	5k/s
02B	going		1.3 k	5k/s
02C	going		1.3 k	5k/s
03A	going		1.3 k	5k/s
03B	going		1.4 k	5k/s
03C	going		1.5 k	5k/s
04A	going		1.3 k	5k/s
04B	going		1.2 k	5k/s
04C	going		1.2 k	5k/s
05A	going		1.3 k	5k/s
05B	GOING		1.2 k	5k/s
05C	GOING		1.2 k	5k/s
09B	going		1.3 k	5k/s
09C	GOING		1.4 k	5k/s
10A	going		1.4 k	5k/s
10B	going		1.4 k	5k/s
10C	going		1.3 k	5k/s
11A	GOING		1.3 k	5k/s
11B	GOING		1.4 k	5k/s
11C	GOING		1.4 k	5k/s
12A	going		1.3 k	5k/s
12B	going		1.4 k	5k/s
12C	going			5k/s
13A	going			5k/s
13B	going			5k/s
13C	going			5k/s
14A	going		1.3 k	5k/s
14B	GOING		1.3 k	5k/s
14C	GOING		1.3 k	5k/s



```

Aurora: CHANNEL UP      Input: RUH      Sort: RUH      t=100 k=0.9 V5      h: help
      cLock ..... 16.728.770.248.096 100.09 M      event number ..... 4.095.176.388 3.14 K
      input trigger ..... 9.078.426.430 4.14 K      output reject ..... 1.266.287 1.00
      input idle ..... 1.200.570.630.243 8.89 M      output validate ..... 8.973.857.720 4.09 K
      sort trigger ..... 9.078.364.968 4.14 K
      sort idle ..... 658.206.671.884 3.85 M
      subbus trigger ..... 8.975.124.007 4.09 K
      subbus idle ..... 646.091.057.654 3.84 M
      subbus under min ..... 0 0.00
      transition ..... 8.037.232.392 3.14 K
      threshold not reached ..... 0 0.00
      threshold reached ..... 8.975.124.007 4.09 K
      subbus trigger ..... 0 0.00
      subbus idle ..... 661.205.921.493 3.85 M
      subbus under min ..... 0 0.00
      transition ..... 0 0.00
      threshold not reached ..... 0 0.00
      threshold reached ..... 0 0.00
      gate reject ..... 1.266.287 1.00
      gate validate ..... 8.973.857.720 4.09 K
      threshold equal ..... 8.037.232.392 3.14 K
      gate reject ..... 0 0.00
      gate validate ..... 0 0.00
      threshold equal ..... 0 0.00
  
```

```

[ scgw3 ] [ 0$ topology 1$ server_carrier 2$ cgui 3-$ carrier_setup 4$ midas_digitizers (5*$TriggerProc) 6$ carrier_WK 7$ MID
  
```

```

resync: dom 0 sub 20 (brd 1 adc 1) 254789 s
resync: dom 0 sub 21 (brd 1 adc 1) 271648 s
resync: dom 0 sub 21 (brd 1 adc 1) 14224 s
resync: dom 0 sub 21 (brd 1 adc 1) 9109 s
resync: dom 0 sub 21 (brd 1 adc 1) 43957 s
resync: dom 0 sub 21 (brd 1 adc 1) 77699 s
resync: dom 0 sub 4 (brd 0 adc 3) 670892 s
resync: dom 0 sub 21 (brd 1 adc 1) 50293 s
resync: dom 0 sub 21 (brd 1 adc 1) 43171 s
resync: dom 0 sub 21 (brd 1 adc 1) 48622 s
resync: dom 0 sub 21 (brd 1 adc 1) 12728 s
resync: dom 0 sub 21 (brd 1 adc 1) 69362 s
resync: dom 0 sub 31 (brd 2 adc 2) 1076428 s
resync: dom 0 sub 21 (brd 1 adc 1) 62725 s
resync: dom 0 sub 21 (brd 1 adc 1) 38719 s
resync: dom 0 sub 21 (brd 1 adc 1) 37126 s
resync: dom 0 sub 14 (brd 1 adc 4) 2612 s
resync: dom 0 sub 14 (brd 1 adc 4) 58 s
resync: dom 0 sub 14 (brd 1 adc 4) 954 s
resync: dom 0 sub 14 (brd 1 adc 4) 1472 s
resync: dom 0 sub 14 (brd 1 adc 4) 116 s
resync: dom 0 sub 14 (brd 1 adc 4) 474 s
resync: dom 0 sub 14 (brd 1 adc 4) 373 s
resync: dom 0 sub 14 (brd 1 adc 4) 686 s
resync: dom 0 sub 14 (brd 1 adc 4) 928 s
resync: dom 0 sub 14 (brd 1 adc 4) 1033 s
resync: dom 0 sub 25 (brd 2 adc 5) 6628 s
resync: dom 0 sub 11 (brd 0 adc 0) 15039 s
resync: dom 0 sub 25 (brd 2 adc 5) 5715 s
resync: dom 0 sub 25 (brd 2 adc 5) 623 s
resync: dom 0 sub 14 (brd 1 adc 4) 7241 s
resync: dom 0 sub 11 (brd 0 adc 0) 6122 s
resync: dom 0 sub 14 (brd 1 adc 4) 5229 s
resync: dom 0 sub 5 (brd 0 adc 3) 612 s
resync: dom 0 sub 5 (brd 0 adc 3) 79 s
resync: dom 0 sub 5 (brd 0 adc 3) 2373 s
resync: dom 0 sub 5 (brd 0 adc 3) 426 s
resync: dom 0 sub 5 (brd 0 adc 3) 520 s
resync: dom 0 sub 5 (brd 0 adc 3) 1422 s
resync: dom 0 sub 5 (brd 0 adc 3) 2004 s
resync: dom 0 sub 5 (brd 0 adc 3) 131 s
resync: dom 0 sub 5 (brd 0 adc 3) 1886 s
resync: dom 0 sub 5 (brd 0 adc 3) 10 s
resync: dom 0 sub 5 (brd 0 adc 3) 89 s
resync: dom 0 sub 5 (brd 0 adc 3) 269 s
resync: dom 0 sub 5 (brd 0 adc 3) 7645 s
resync: dom 0 sub 5 (brd 0 adc 3) 4198 s
resync: dom 0 sub 5 (brd 0 adc 3) 653 s
resync: dom 0 sub 5 (brd 0 adc 3) 5321 s
resync: dom 0 sub 5 (brd 0 adc 3) 7409 s
resync: dom 0 sub 5 (brd 0 adc 3) 260 s
  
```

Global Status & Control

going 40.0 k

Crystals Status & Control | Options | Long Traces | Experiment Control | View

Go Stop Drain

Load Conf

Per Crystal Status & Control

00A	going		1.2 k
00B	going		1.1 k
00C	going		1.1 k
01A	GOING		1.2 k
01B	GOING		1.3 k
01C	GOING		1.2 k
02A	going		1.3 k
02B	going		1.3 k
02C	going		1.3 k
03A	going		1.3 k
03B	going		1.3 k
03C	going		1.3 k
04A	going		1.2 k
04B	going		1.2 k
04C	going		1.2 k
05A	going		1.3 k
05B	GOING		1.3 k
05C	GOING		1.3 k
09B	going		1.3 k
09C	GOING		1.3 k
10A	going		1.4 k
10B	going		1.4 k
10C	going		1.3 k
11A	GOING		1.4 k
11B	GOING		1.5 k
11C	GOING		1.3 k
12A	going		1.3 k
12B	going		1.4 k
12C	going		
13A	going		
13B	going		
13C	going		
14A	going		1.3 k
14B	GOING		1.3 k
14C	GOING		1.2 k

femul-cdat-NoPSA- Histo-1.5KHz

```

Terminal
File Edit View Search Terminal Help

Aurora: CHANNEL UP      Input: RUN      Sort: RUN      t=100 k=0.9 V5      h: help
clock ..... 16.738.910.296.112 100.00 M      event number ..... 4.097.336.887 14.00 K
input trigger ..... 9.081.266.193 18.50 K      output reject ..... 1.266.726 4.75
input idle ..... 1.201.469.281.132 8.81 M      output validate ..... 8.976.675.380 18.26 K
sort trigger ..... 9.081.204.711 18.50 K
sort idle ..... 658.601.142.486 3.86 M
sumbus trigger ..... 8.977.942.106 18.27 K
sumbus idle ..... 646.481.606.012 3.82 M
sumbus under min ..... 0 0.00
transition ..... 8.039.392.891 14.00 K      gate reject ..... 1.266.726 4.75
gate validate ..... 8.976.675.380 18.26 K
threshold not reached ..... 0 0.00
threshold reached ..... 8.977.942.106 18.27 K      threshold equal ..... 8.039.392.891 14.00 K
sumbus trigger ..... 0 0.00
sumbus idle ..... 661.601.069.836 3.85 M
sumbus under min ..... 0 0.00
transition ..... 0 0.00
gate reject ..... 0 0.00
gate validate ..... 0 0.00
threshold not reached ..... 0 0.00
threshold reached ..... 0 0.00
threshold equal ..... 0 0.00

```

```

scpg2 | 05 topology 15 server_carrier 25 cgui 3-5 carrier_setup 45 midas_digitizers (5*$TriggerProc) 65 carrier_hk 75 MID
resync: dom 0 sub 20 (brd 1 adc 1) 254789 s
resync: dom 0 sub 21 (brd 1 adc 1) 271648 s
resync: dom 0 sub 21 (brd 1 adc 1) 14234 s
resync: dom 0 sub 21 (brd 1 adc 1) 9109 s
resync: dom 0 sub 21 (brd 1 adc 1) 43957 s
resync: dom 0 sub 21 (brd 1 adc 1) 77699 s
resync: dom 0 sub 4 (brd 0 adc 3) 670892 s
resync: dom 0 sub 21 (brd 1 adc 1) 50293 s
resync: dom 0 sub 21 (brd 1 adc 1) 43171 s
resync: dom 0 sub 21 (brd 1 adc 1) 48622 s
resync: dom 0 sub 21 (brd 1 adc 1) 12728 s
resync: dom 0 sub 21 (brd 1 adc 1) 69362 s
resync: dom 0 sub 31 (brd 2 adc 2) 1076428 s
resync: dom 0 sub 21 (brd 1 adc 1) 62725 s
resync: dom 0 sub 21 (brd 1 adc 1) 38719 s
resync: dom 0 sub 21 (brd 1 adc 1) 37126 s
resync: dom 0 sub 5 (brd 0 adc 3) 612 s
resync: dom 0 sub 5 (brd 0 adc 3) 79 s
resync: dom 0 sub 5 (brd 0 adc 3) 2373 s
resync: dom 0 sub 5 (brd 0 adc 3) 426 s
resync: dom 0 sub 5 (brd 0 adc 3) 520 s
resync: dom 0 sub 5 (brd 0 adc 3) 1422 s
resync: dom 0 sub 5 (brd 0 adc 3) 2004 s
resync: dom 0 sub 5 (brd 0 adc 3) 131 s
resync: dom 0 sub 5 (brd 0 adc 3) 1886 s
resync: dom 0 sub 5 (brd 0 adc 3) 10 s
resync: dom 0 sub 5 (brd 0 adc 3) 89 s
resync: dom 0 sub 5 (brd 0 adc 3) 269 s
resync: dom 0 sub 5 (brd 0 adc 3) 7645 s
resync: dom 0 sub 5 (brd 0 adc 3) 4198 s
resync: dom 0 sub 5 (brd 0 adc 3) 653 s
resync: dom 0 sub 5 (brd 0 adc 3) 5321 s
resync: dom 0 sub 5 (brd 0 adc 3) 7409 s
resync: dom 0 sub 5 (brd 0 adc 3) 260 s

```

Global Status & Control

going 89.8 k [100k/s]

Crystals Status & Control | Options | Long Traces | Expert Control | View

Go Stop Drain Load Conf Setup Reset

Per Crystal Status & Control

00A	going	1.2 k	5k/s
00B	going	1.1 k	5k/s
00C	going	1.1 k	5k/s
01A	GOING	1.1 k	5k/s
01B	GOING	1.2 k	5k/s
01C	GOING	1.2 k	5k/s
02A	going	1.3 k	5k/s
02B	going	1.3 k	5k/s
02C	going	1.3 k	5k/s
03A	going	1.3 k	5k/s
03B	going	1.3 k	5k/s
03C	going	1.3 k	5k/s
04A	going	1.2 k	5k/s
04B	going	1.3 k	5k/s
04C	going	1.2 k	5k/s
05A	going	1.3 k	5k/s
05B	GOING	1.2 k	5k/s
05C	GOING	1.3 k	5k/s
09B	going	1.3 k	5k/s
09C	GOING	1.3 k	5k/s
10A	going	1.4 k	5k/s
10B	going	1.4 k	5k/s
10C	going	1.2 k	5k/s
11A	GOING	1.4 k	5k/s
11B	GOING	1.4 k	5k/s
11C	GOING	1.3 k	5k/s
12A	going	1.4 k	5k/s
12B	going	1.4 k	5k/s
12C	going		5k/s
13A	going		5k/s
13B	going		5k/s
13C	going		5k/s
14A	going	1.3 k	5k/s
14B	GOING	1.3 k	5k/s
14C	GOING	1.3 k	5k/s

femul-NoPSA- Histo-1.5KHz

Terminal

```
File Edit View Search Terminal Help

Aurora: CHANNEL UP      Input: RUN      Sort: RUI      t=100 k=0.9 VS      h: help

clock ..... 16.751.806.383.77 100.00 M
input trigger ..... 9.084.704.448 22.19 K
input idle ..... 1.202.612.619.59 8.87 M
sort trigger ..... 9.084.643.366 22.19 K
sort idle ..... 659.103.017.283 3.89 M
subbus trigger ..... 8.981.355.479 21.97 K
subbus idle ..... 646.978.827.462 3.85 M
subbus under min ..... 0 0.00
transition ..... 8.042.009.922 16.93 K

threshold not reached ..... 0 0.00
threshold reached ..... 8.981.355.479 21.97 K

subbus trigger ..... 0 0.00
subbus idle ..... 662.103.866.615 3.89 M
subbus under min ..... 0 0.00
transition ..... 0 0.00

threshold not reached ..... 0 0.00
threshold reached ..... 0 0.00

event number ..... 4.099.953.918 16.93 K
output reject ..... 1.267.240 4.72
output validate ..... 8.980.088.239 21.97 K
gate reject ..... 1.267.240 4.72
gate validate ..... 8.980.088.239 21.97 K
threshold equal ..... 8.042.009.922 16.93 K

[scpw3] [ _0$ topology 1$ server_carrier 2$ cgui 3-$ carrier_setup 4$ midas_digitizers (5*$TriggerProc) 6$ carrier_WK 7$ UID
```

resync: dom 0 sub 20 (brd 1 adc 1) 254789 s	resync: dom 0 sub 21 (brd 1 adc 1) 271648 s	resync: dom 0 sub 21 (brd 1 adc 1) 14234 s	resync: dom 0 sub 21 (brd 1 adc 1) 9109 s	resync: dom 0 sub 21 (brd 1 adc 1) 43957 s	resync: dom 0 sub 21 (brd 1 adc 1) 77699 s	resync: dom 0 sub 4 (brd 0 adc 3) 670892 s	resync: dom 0 sub 21 (brd 1 adc 1) 50293 s	resync: dom 0 sub 21 (brd 1 adc 1) 43171 s	resync: dom 0 sub 21 (brd 1 adc 1) 48622 s	resync: dom 0 sub 21 (brd 1 adc 1) 12728 s	resync: dom 0 sub 21 (brd 1 adc 1) 69362 s	resync: dom 0 sub 31 (brd 2 adc 2) 1076428 s	resync: dom 0 sub 21 (brd 1 adc 1) 62725 s	resync: dom 0 sub 21 (brd 1 adc 1) 38719 s	resync: dom 0 sub 21 (brd 1 adc 1) 37126 s		
resync: dom 0 sub 14 (brd 1 adc 4) 2612 s	resync: dom 0 sub 14 (brd 1 adc 4) 58 s	resync: dom 0 sub 14 (brd 1 adc 4) 954 s	resync: dom 0 sub 14 (brd 1 adc 4) 1472 s	resync: dom 0 sub 14 (brd 1 adc 4) 116 s	resync: dom 0 sub 14 (brd 1 adc 4) 474 s	resync: dom 0 sub 14 (brd 1 adc 4) 373 s	resync: dom 0 sub 14 (brd 1 adc 4) 686 s	resync: dom 0 sub 14 (brd 1 adc 4) 928 s	resync: dom 0 sub 14 (brd 1 adc 4) 1033 s	resync: dom 0 sub 25 (brd 2 adc 5) 6628 s	resync: dom 0 sub 11 (brd 0 adc 0) 15039 s	resync: dom 0 sub 25 (brd 2 adc 5) 5715 s	resync: dom 0 sub 25 (brd 2 adc 5) 623 s	resync: dom 0 sub 14 (brd 1 adc 4) 7241 s	resync: dom 0 sub 11 (brd 0 adc 0) 6122 s	resync: dom 0 sub 14 (brd 1 adc 4) 5229 s	
resync: dom 0 sub 5 (brd 0 adc 3) 612 s	resync: dom 0 sub 5 (brd 0 adc 3) 79 s	resync: dom 0 sub 5 (brd 0 adc 3) 2373 s	resync: dom 0 sub 5 (brd 0 adc 3) 426 s	resync: dom 0 sub 5 (brd 0 adc 3) 520 s	resync: dom 0 sub 5 (brd 0 adc 3) 1422 s	resync: dom 0 sub 5 (brd 0 adc 3) 2004 s	resync: dom 0 sub 5 (brd 0 adc 3) 131 s	resync: dom 0 sub 5 (brd 0 adc 3) 1886 s	resync: dom 0 sub 5 (brd 0 adc 3) 10 s	resync: dom 0 sub 5 (brd 0 adc 3) 89 s	resync: dom 0 sub 5 (brd 0 adc 3) 269 s	resync: dom 0 sub 5 (brd 0 adc 3) 7645 s	resync: dom 0 sub 5 (brd 0 adc 3) 4198 s	resync: dom 0 sub 5 (brd 0 adc 3) 653 s	resync: dom 0 sub 5 (brd 0 adc 3) 5321 s	resync: dom 0 sub 5 (brd 0 adc 3) 7409 s	resync: dom 0 sub 5 (brd 0 adc 3) 260 s

Global Status & Control

going 89.6 k [100k/s]

Crystals Status & Control | Options | Long Traces | Experiment Control | View

Go Stop Drain Load Conf SetUp Reset

Per Crystal Status & Control

00A	going	1.2 k	5k/s
00B	going	1.1 k	5k/s
00C	going	1.2 k	5k/s
01A	GOING	1.1 k	5k/s
01B	GOING	1.2 k	5k/s
01C	GOING	1.1 k	5k/s
02A	going	1.3 k	5k/s
02B	going	1.3 k	5k/s
02C	going	1.3 k	5k/s
03A	going	1.2 k	5k/s
03B	going	1.3 k	5k/s
03C	going	1.4 k	5k/s
04A	going	1.2 k	5k/s
04B	going	1.3 k	5k/s
04C	going	1.3 k	5k/s
05A	going	1.2 k	5k/s
05B	GOING	1.2 k	5k/s
05C	GOING	1.2 k	5k/s
09B	going	1.3 k	5k/s
09C	GOING	1.3 k	5k/s
10A	going	1.5 k	5k/s
10B	going	1.5 k	5k/s
10C	going	1.2 k	5k/s
11A	GOING	1.4 k	5k/s
11B	GOING	1.3 k	5k/s
11C	GOING	1.3 k	5k/s
12A	going	1.2 k	5k/s
12B	going	1.4 k	5k/s
12C	going		5k/s
13A	going		5k/s
13B	going		5k/s
13C	going		5k/s
14A	going	1.4 k	5k/s
14B	GOING	1.4 k	5k/s
14C	GOING	1.3 k	5k/s

femul-NoPSA--1.5KHz