

INTT Run QA Status and Plan

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- First Silicon GOOD Run list produced by tracking group(Devon), almost right after INTT analysis workshop

<https://indico.bnl.gov/event/25959/#2-silicon-good-run-list>

- And 1st Good silicon run list has been circulated.
- Devon put effort on Silicon QA, both INTT and MVTX.
-> want to combine our effort and his work for reaching out to middle ground

- 1st Run range selection -> Only some runs with TPC

Good physics run ranges

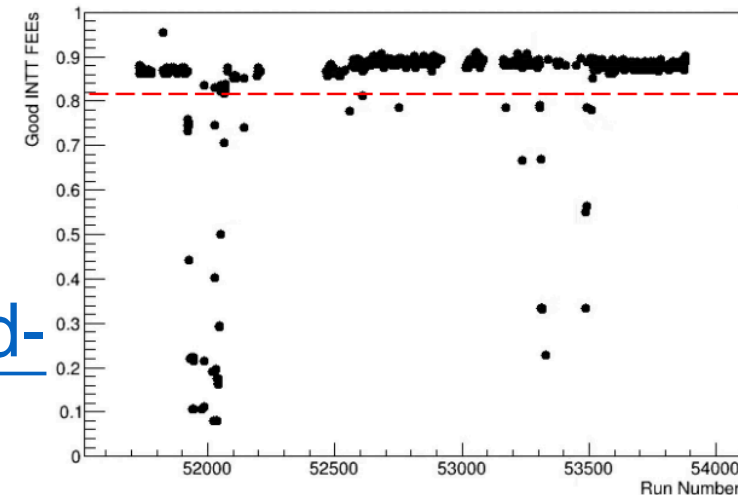
- Before Aug 20:
 - Data pipeline setup, not advised for analysis
- Aug 20-Aug 28: Run 51730-52206
- Aug 28-Sept 1:
 - Significant data loss, not advised for analysis
- Sept 1-End of run: Run 52469-53880 (End of run 24)
 - Note diffuse laser intensity reduction [after run 53387](#)

Checking INTTRAWHIT QA(output of offline QA) through across the run range on left

Item to check ->hit coverage is sufficiently uniform across the channels and chips of a given FEE.
 If the RMS of a FEE (measure of the uniformity of the hit distribution) is out of 3 sigma away from a regression fit to all the FEE RMS's in a given run -> counted that as a "bad" FEE.

if that run had less than a certain threshold of good FEEs (Now, chose 81.5%)

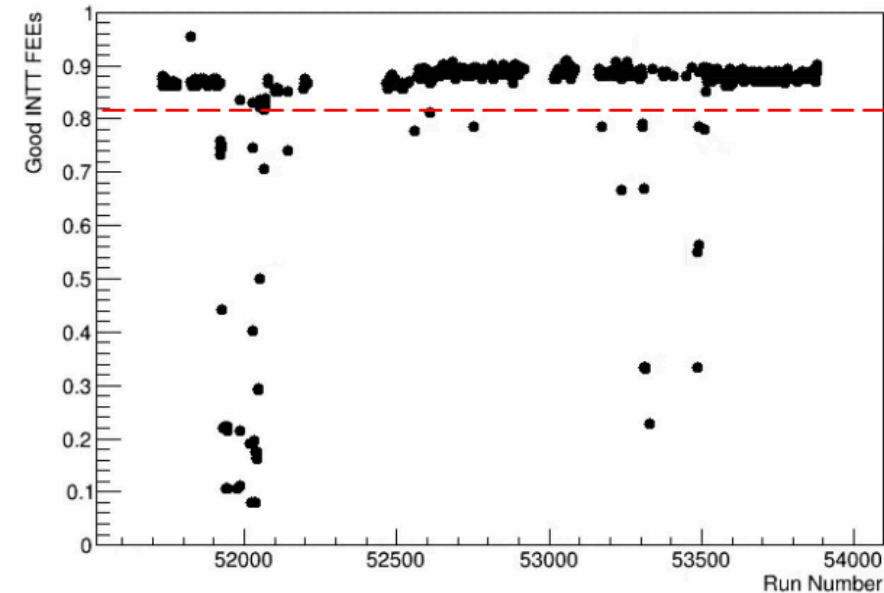
- Please check published slide here for details
- <https://indico.bnl.gov/event/25959/#2-silicon-good-run-list>



Original QA items in our mind (at least ideas presented during INTT KU workshop)

- # of no-hit channels
- Hit rate distribution of each Felix server(in total, 8)
- **BCO alignment**
- Runtime
(MVTX QA includes runtime; how much? -> check needed)
- Cluster size QA(?)

Can be covered by Devon's original QA
Strongly suggesting it to be included in QA



Now BCO QA is also included in good run list

Loading BCO CDBTree from CDB database (already available in official database)

Code is available

<https://github.com/sPHENIX-Collaboration/TrackingAnalysis/tree/main/SiliconQA>

Additional BCO check

-> In streaming mode; Check ALL FEEs' BCO offset are aligned at 23(fixed value)

Masking ladders are excluded in BCO check

-> In Trigger mode; Check Standard deviation of All Fees' BCO offset : should be 0

Masking ladders are excluded in BCO check

Now BCO QA is also included in good run list

<https://github.com/sPHENIX-Collaboration/TrackingAnalysis/blob/main/SiliconQA/macros/README.md>

✔ INTT BCO Diff ✔ INTT Hit Acceptance ✔ INTT FEE RMS ✔ MVTX Hit Acceptance ✔ MVTX chi2/ndf ✔ MVTX B/A ratio ✔ MVTX
Run length

```
51732 51733 51735 51736 51740 51741 51742 51753 51754 51762 51763 51764 51768 51772 51777 51778 51825 51826 51827 51828
51829 51831 51837 51838 51839 51840 51841 51842 51843 51854 51855 51856 51858 51860 51865 51874 51877 51878 51881
51886 51900 51901 51902 51905 51906 51907 51908 51914 51915 51921 51936 51979 51981 51988 52020 52027 52031 52050
03238 03307 03308 03309 03310 03311 03312 03313 03314 03315 03488 03489 03490 03491
```

✔ INTT BCO Diff ✘ INTT Hit Acceptance ✘ INTT FEE RMS ✘ MVTX Hit Acceptance ✘ MVTX chi2/ndf ✘ MVTX B/A ratio ✔ MVTX
Run length

```
53171 53329 53330 53331
```

✘ INTT BCO Diff ✔ INTT Hit Acceptance ✔ INTT FEE RMS ✔ MVTX Hit Acceptance ✔ MVTX chi2/ndf ✔ MVTX B/A ratio ✔ MVTX
Run length

```
51824 52101 52102 52104 52107 52108 52110 52112 52141 52143 52145 52893 53208 53209 53210 53214 53682 53815
```

The current code should work in both Trigger and streaming mode

Now, only cover some streaming runs with TPC

Will be extended in Silicon Only Runs

Suggest no more OTHER CODE for QA

<https://github.com/sPHENIX-Collaboration/TrackingAnalysis/tree/main/SiliconQA>

If you want to add your QA (Cluster size for example, please merge here. -> I can help if you need)
But we don't have a lot of time for it for upcoming QM