ROC stability check for Run23

Akitomo Enokizono

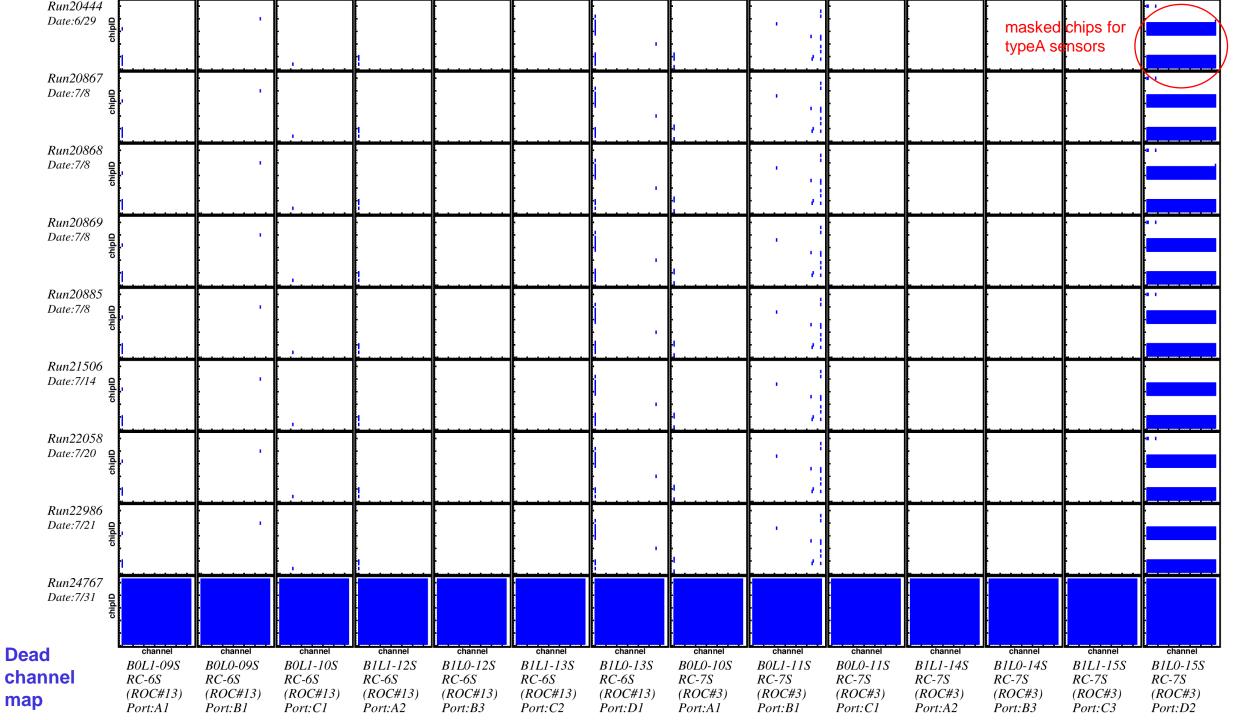
How to check the ROC instability for Run23

- Based on Jaein's dead map files (Many thanks to Jaein for quickly creating the map files!)
- Following 9 runs are picked up (randomly but to cover at least one run per week)
 - Run20444; 6/29
 - Run20867, 20868, 20869, 20885; 7/8
 - Run21506; 7/14
 - Run22058; 7/20
 - Run22986; 7/21
 - Run24767; 7/31
- Information of runs, ladder ID, ROC number, port number etc, is based on the following spreadsheets.
 - https://docs.google.com/spreadsheets/d/19PSvkhAQA8rnkP0z_wpN87CWQ6O-f3bT/edit#gid=1658598300
 - https://docs.google.com/spreadsheets/d/11jsgrsI7pS02Ia Huew4Fw-nbNwOzI6VhbI0nRYUXw/edit#gid=1976652756
 - https://docs.google.com/spreadsheets/d/1Cj2CWWw6psGGJb9fU8SJ0dxWAL2nAFakSCiorTXfm7A/edit#gid=0

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Dead channel map	channel B1L1-01S RC-0S (ROC#6) Port:D2	channel BOL1-01S RC-0S (ROC#6) Port:C1	channel B1L0-01S RC-0S (ROC#6) Port: C2	channel B1L0-00S RC-0S (ROC#6) Port:B3	channel B1L1-00S RC-0S (ROC#6) Port:A2	channel B0L0-00S RC-0S (ROC#6) Port:B1	channel B0L1-00S RC-0S (ROC#6) Port:A1	channel B1L1-03S RC-1S (ROC#19) Port: C2	channel BOLO-0S2 RC-1S (ROC#19) Port: C1	channel B0L0-01S RC-1S (ROC#19) Port:A1	channel B1L0-02S RC-1S (ROC#19) Port:B3	channel B1L1-02S RC-1S (ROC#19) Port:A2	channel B0L1-02S RC-1S (ROC#19) Port:B1	channel B1L0-03S RC-1S (ROC#19) Port:D2]

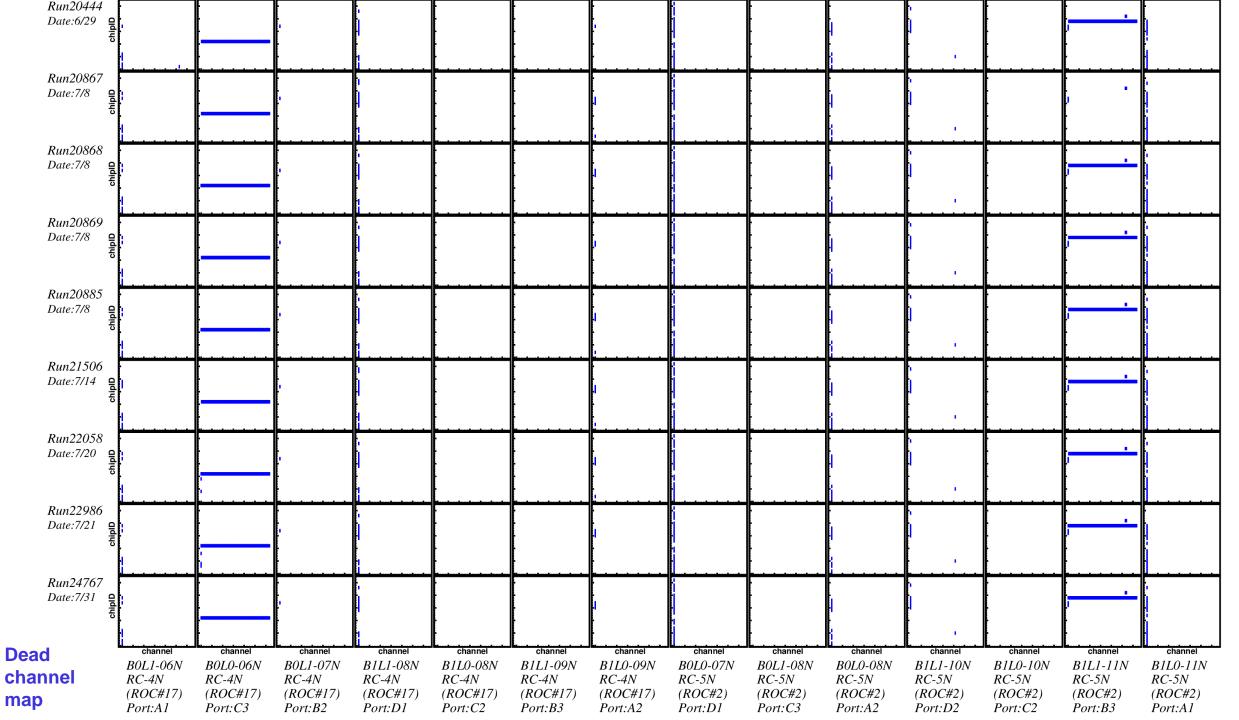
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Dead	channel B1L1-05S	channel BOL1-04S	channel BOL1-03S	channel $B1L0-04S$	channel $B1L1-04S$	channel BOLO-03S	channel B1L0-05S	channel $B1L1-07S$	channel BOLO-05S	channel BOLO-04S	channel B1L0-06S	channel $B1L1-06S$	channel BOL1-05S	channel B1L0-07S
channel map	RC-2S (ROC#28) Port: C2	RC-2S (ROC#28) Port:C1	RC-2S (ROC#28) Port:A2	RC-2S (ROC#28) Port:B3	RC-2S (ROC#28) Port:A1	RC-2S (ROC#28) Port:B1	RC-2S (ROC#28) Port:D2	RC-3S (ROC#20) Port:C2	RC-3S (ROC#20) Port:C1	RC-3S (ROC#20) Port:A1	RC-3S (ROC#20) Port:B2	RC-3S (ROC#20) Port:A2	RC-3S (ROC#20) Port:B1	RC-3S (ROC#20) Port:D1

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Dead	channel BOL1-06S	channel BOLO-06S	channel BOL1-07S	channel B1L1-08S	channel B1L0-08S	channel B1L1-09S	channel B1L0-09S	channel BOLO-07S	channel BOL1-08S	channel BOLO-08S	channel B1L1-10S	channel B1L0-10S	channel B1L1-11S	channel B1L0-11S
channel	RC-4S (ROC#29)	RC-4S (ROC#29)	RC-4S (ROC#29)	RC-4S (ROC#29)	RC-4S (ROC#29)	RC-4S (ROC#29)	RC-4S (ROC#29)	RC-5S (ROC#23)	RC-5S (ROC#23)	RC-5S (ROC#23)	RC-5S (ROC#23)	RC-5S (ROC#23)	RC-5S (ROC#23)	RC-5S (ROC#23)
map	Port:A1	Port:B1	Port:C1	Port:A2	Port:B2	Port:C2	Port:D1	Port:A1	Port:B3	Port:C1	Port:A2	Port:B2	Port:C2	Port:C3



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Dead channel	channel B1L1-01N RC-0N	channel B0L0-00N RC-0N	channel B0L1-00N RC-0N	channel B1L0-01N RC-0N	channel B0L1-01N RC-0N	channel B1L0-00N RC-0N	channel B1L1-00N RC-0N	channel B0L0-02N RC-1N	channel B0L1-02N RC-1N	channel B0L0-01N RC-1N	channel B1L0-03N RC-1N	channel B1L1-03N RC-1N	channel B1L0-02N RC-1N	channel B1L1-02N RC-1N
map	(ROC#8) Port:B1	(<i>ROC#8</i>) <i>Port:C</i> 2	(ROC#8) Port:D1	(ROC#8) Port:A2	(ROC#8) Port:B2	(<i>ROC#8</i>) <i>Port:C3</i>	(ROC#8) Port:D2	(ROC#27) Port:B1	(<i>ROC#27</i>) <i>Port:C2</i>	(ROC#27) Port:D1	(ROC#27) Port:A2	(ROC#27) Port:B2	(<i>ROC#27</i>) <i>Port:C3</i>	(ROC#27) Port:B3

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Dead channel map	channel B0L0-03N RC-2N (ROC#31) Port:C1	channel BOL1-04N RC-2N (ROC#31) Port:B1	channel BOL1-03N RC-2N (ROC#31) Port:D2	channel B1L0-04N RC-2N (ROC#31) Port:D1	channel B1L0-05N RC-2N (ROC#31) Port:A2	channel B1L1-04N RC-2N (ROC#31) Port:C2	channel B1L1-05N RC-2N (ROC#31) Port:A1	channel B1L1-07N RC-3N (ROC#32) Port: C3	channel B1L0-07N RC-3N (ROC#32) Port:B1	channel B1L0-06N RC-3N (ROC#32) Port:C1	channel B1L1-06N RC-3N (ROC#32) Port:D2	channel B0L0-05N RC-3N (ROC#32) Port:A1	channel BOL1-05N RC-3N (ROC#32) Port: C2	channel BOLO-04N RC-3N (ROC#32) Port:D1



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Dead channel map	channel BOL1-09N RC-6N (ROC#24) Port:B3	channel BOLO-09N RC-6N (ROC#24) Port: C1	channel B0L1-10N RC-6N (ROC#24) Port:B1	channel B1L1-12N RC-6N (ROC#24) Port:D1	channel B1L0-12N RC-6N (ROC#24) Port: C2	channel B1L1-13N RC-6N (ROC#24) Port:B2	channel B1L0-13N RC-6N (ROC#24) Port:A1	channel B0L0-10N RC-7N (ROC#22) Port:B2	channel BOL1-11N RC-7N (ROC#22) Port: C2	channel B0L0-11N RC-7N (ROC#22) Port:B1	channel B1L1-14N RC-7N (ROC#22) Port:D2	channel B1L0-14N RC-7N (ROC#22) Port: C3	channel B1L1-15N RC-7N (ROC#22) Port:B3	channel B1L0-15N RC-7N (ROC#22) Port:A1	1

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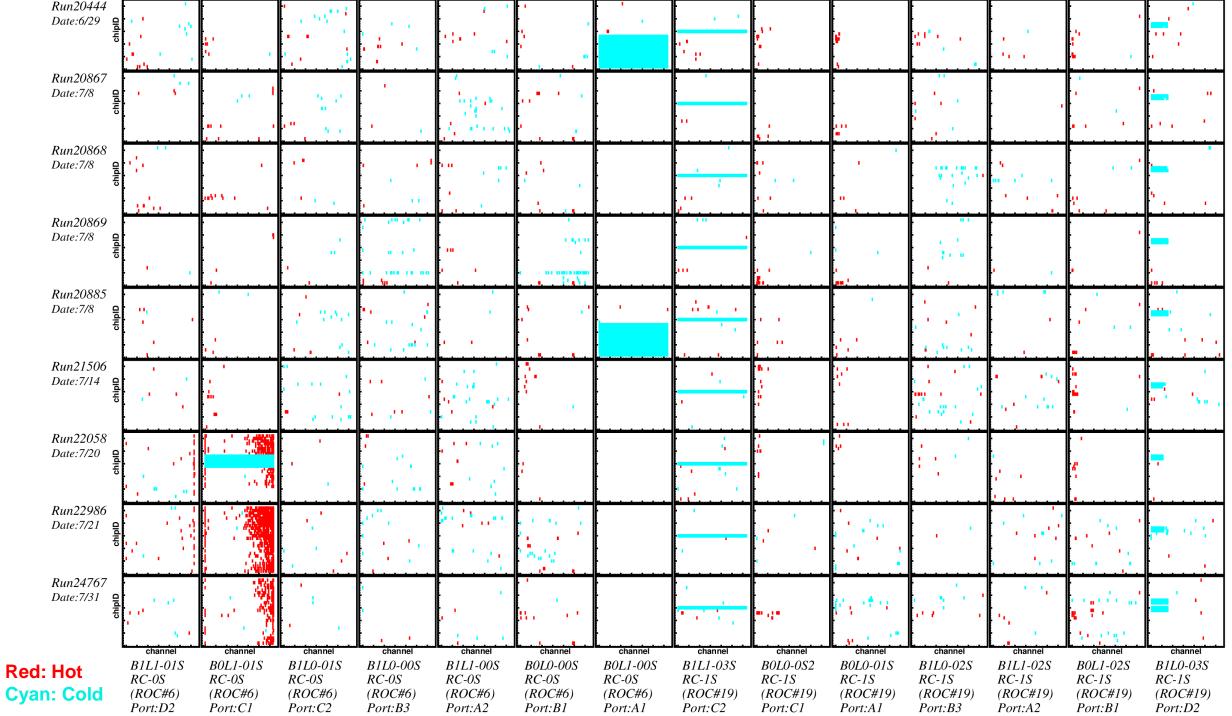
Result

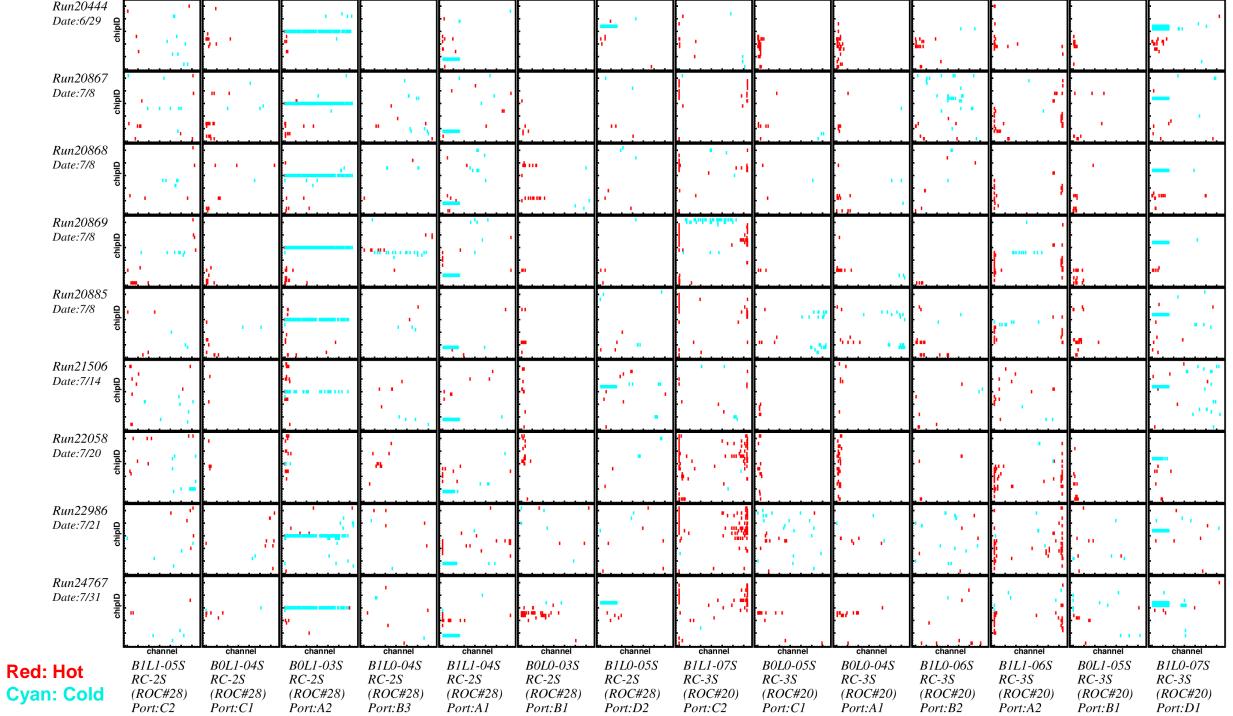
- Port A1 on RC-0S (ROC#6) shows run-by-run instability. Should be best avoided.
 - Rachid replaced ROC#6 with ROC#18 for RC-0S, so no problem already (as long as ROC#18 has no issue.)

Extra Sildes

- Run-by-run dependence of hot/cold maps
 - This instability is nothing to do with the ROC instability but the other cause.

- DAC values are same for analyzed runs
- The condition of Jaein's analysis:
 - Hot channel > mean+3 σ , Cold channel < mean-3 σ





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