

Advanced LIGO Engineering Change Request (ECR)

ECR Title: Watchdog science frame data rate change

DCC No: E1300907-v1

Date: Nov 27, 2013

Requester: Brian Lantz

Impacted Subsystem(s): SEI-HAM-ISI, BSC-ISI, HEPI

Description of Proposed Change(s): Change the data rate for the Watchdog state channel in Science frames from 512 samples/sec up to the model rate (2048 for HEPI, 4096 for ISI).

Accompanies integration issue 552

https://services.ligo-wa.caltech.edu/integrationissues/show_bug.cgi?id=552

Reason for Change(s): The downsampling of the watchdog state info makes investigations of the WD trip more difficult. The downsampling means that the actual trip time is lost, and the ringing of the AA filter makes the state info more difficult to interpret; instead of being an integer 1-4, it becomes a real number, and rings for many cycles on each transition. Since the data is compressed in the science frame, and the WD is mostly just a constant integer, the disk space needed to store the channel is quite small.

Estimated Cost: \$0

Schedule Impact Estimate: slight – each model needs to be rebuilt

Nature of Change (check all that apply):

- Safety
- Correct Hardware
- Correct Documentation

- Improve Hardware
- Improve/Clarify Documentation
- Change Interface
- Change Requirement

Importance:

- Desirable for ease of use, maintenance, safety
- Desirable for improved performance, reliability
- Essential for performance, reliability
- Essential for function
- Essential for safety

Urgency:

- No urgency
- Desirable by date/event: soon
- Essential by date/event: _____
- Immediately (ASAP)

Impacted Hardware (select all that apply):

- Repair/Modify. List part & SNs: _____
- Scrap & Replace. List part & SNs: _____
- Installed units? List IFO, part & SNs: _____
- Future units to be built

Impacted Documentation (list all dwgs, design reports, test reports, specifications, etc.):

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Disposition of the proposed change(s):

The disposition of this proposed engineering change request is to be completed by Systems Engineering and indicated in the “Notes and Changes” metadata field in the DCC entry for this ECR. The typical dispositions are as follows:

- **Additional Information Required**: in which case the additional information requested is defined. The ECR requester then re-submits the ECR with the new information using the same DCC number for the ECR but with the next version number.
- **Rejected**: in which case the reason(s) for the rejection are to be given
- **Approved**
- **Approved with Caveat(s)**: in which case the caveat(s) are listed
- **TRB**: the ECR is referred to an ad-hoc Technical Review Board for further evaluation and recommendation. It is the System Engineer’s (or designee’s) responsibility to organize the TRB. The System Engineer (or designee) then makes a technical decision based on the TRB’s recommendation. Links to the TRB’s documentation (charge, memos, final report, etc.) are to be added to the “Related Documents” field for this ECR.
- **CCB**: a change request for approval of additional funds or schedule impact is to be submitted to the Configuration Control Board. Links to the CCB’s documentation (CR, etc.) are to be added to the “Related Documents” field for this ECR.

Concurrence by Project Management:

Acknowledgement/acceptance/approval of the disposition is to be indicated by the electronic “signature” feature in the DCC entry for this ECR, by one the following personnel:

- Systems Scientist
- Systems Engineer
- Deputy Systems Engineer