Advanced LIGO Engineering Change Request (ECR)

ECR Title: HEPI model updates Nov 2013

DCC No: E1300872-v1

Date: Nov 14, 2013

Requester: Brian Lantz   **Impacted Subsystem(s):HEPI**

Description of Proposed Change(s): We need to make a set of updates to the HEPI master model and related MEDM screens. These are each small to medium level changes. The complete list with discussion can be found at https://dcc.ligo.org/T1300936.

Updates include:

* Calibrated CART basis biasing and tracking for the IPS sensors (like what is already in place on ISIs).

*Isolation loop updates to fix ODC monitor, MEDM monitor, and allow WD reset of the isolation loops.

* Watchdog updates - Checkerscript migration (overlap with existing checkerscript ECR). Move to 4 state Watchdog (WD) to enable a later update to hold biases. The bias holding will not be implemented. Allow the WD to ride though 10 saturation cyclec (5 msec) before tripping. Add IOP-WD and Hardware WD signal inputs to the c-code - but do not attach them, yet.

* Remove overall GAIN slider from the MASTER block.

Note that the servo loops and blend filters now in use will remain unchanged.

Corresponds with integration issue 530.

Reason for Change(s): Allows system WD to incorporate a more gentle shut down (not yet in place). Adds several features in use with ISI which are requested by users (ISO reset, CART basis monitors)

Estimated Cost:$0

Schedule Impact Estimate: slight – once the updates are tested at LASTI, rebuilding / restarting/ resetting the models at the sites should be quick.

Nature of Change (check all that apply):
☐ **Safety**
☐ **Correct Hardware**
☐ **Correct Documentation**

☐ **Improve Hardware**
☐ **Improve/Clarify Documentation**
☒ **Change Interface**
☐ **Change Requirement**

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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: _ during vent at LLO – 1 week _**
☐ **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.):

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