

080820:

## Summary of Run9 Work

I list below some of the tasks<sup>1</sup> Trigger needs to complete prior to 1 Feb 2009, listed in the priority order we see. We are concerned that our funding is coming so late that we may not be able to accomplish all of these tasks for Run9. We have listed them in priority based on the complexity of the task and on our confidence that we<sup>2</sup> can accomplish them given that we do not yet have any funding in place. Note that we place FPDE and TOF ahead of BBC.ZDC.PXZ,VPD because that task (called BBC hereafter) is the most challenging in terms of both software and hardware changes., while TOF uses existing hardware and FPDE is a simpler change. I don't believe we should begin BBC until we have new QT boards<sup>3</sup> "nearly in hand", since it is an almost irreversible change.

Pri	Task	Crate mod	Cabling	VHDL	Control
1	TCU	No	Yes	MN,EJ	JN,JL <sup>4</sup>
2	BEMC	No	Yes	EJ	JN,JL
3	FMS	Yes	Yes	MN,EJ	JN
4	FPDE	Yes	Yes	EJ, CP	JN
5	TOF	Yes	Yes	EJ	JN
6	BBC,ZDC,PXZ,VPD	Yes	Yes	EJ, CP	JN
7	MTD,P2P	Yes	Yes	EJ	JN

1. TCU: We have just submitted the board suite for fab. We expect to have loaded boards in hand by 1 Oct. In the meantime, Mike and Eleanor are working on the VHDL code. This task will involve major changes to all trigger software, involving Hank, John, and Akio, as well as to the RTS systems (daq and GUI) in Jeff's domain. This will require close coordination between John, Mike, and Jeff to get the registers and logic correct. As part of these changes we would like for Trigger to assume control of the dictionary files to make Tier1 compatibility more transparent.
2. BEMC: we are adopting a new interconnect scheme to allow better jet-patch coverage as laid out by Carl and the Spin group. This requires new Level0, 1, and 2 code from Eleanor, as well as new control registers from Jeff and John.
3. FMS: we will be redoing the FMS map to take advantage of cluster-energy triggering, instead of the difficult-to-interpret high-tower triggers we used in

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<sup>1</sup> For a complete list, see

<http://www.star.bnl.gov/public/trg/run2009/shutdownlist>

<sup>2</sup> We includes Hank,Jack,Eleanor,Chris,Mike,John as well as Jeff, Les, Akio

<sup>3</sup> This include QT32, QT8, QTBOC, TAC and SNOOP Boards

<sup>4</sup> I list Jeff on what appear to be major tasks, but he will have mods to the GUI for all of these tasks

Run8. This will take major effort by Les et.al. as well as major changes in VHDL code, under Eleanor and Mike, and the code we use for vetting the operation (Hank, Akio).

4. FPDE: We expect to convert all FPDE electronics, including the SMD, to QT boards. This requires crate changes (FDE: P3 swap) as well as cabling changes. The VHDL will be done by Eleanor and Chris, with control changes by John.
5. TOF: We expect 60-90 trays of TOF for Run9. These enter the trigger through the new TOF\_DSMI board Dan is making. In DSM land there is new code for both layer 0 and layer 1 boards from Eleanor.
6. BBC,ZDC,PXZ,VPD: This requires a new crate (BDB) and new code in each of the QT boards. We expect the QT boards to mimic the current logic in use for these detectors. This change also requires a TAC modification, currently under discussion as a new interface, a new board, or a QT daughtercard.
7. MTD,P2P: These require a new crate (MXD) with new QT code (Eleanor) and possibly new Level1 code. They also require TAC boards.