

## Implementation of QT Algorithm for STAR FMS : Run 2015 - pp

**QT Code Version:** 0x6e

**MCS File:** qt32b\_10\_v6\_e.mcs

### **Description:**

This algorithm forms two separate sums : One for all channels on Daughter A + Daughter B, One for all channels on Daughter C + Daughter D. The least significant 12 bits of each sum is output to the Layer-0 DSM. If either sum is greater than 0xFFFF, the value 0xFFFF is output for that sum (saturated sum).

### **Inputs:**

QT8A: PMT Inputs

QT8B: PMT Inputs

QT8C: PMT Inputs

QT8D: PMT Inputs

### **Registers (1 Set Per Daughter Card):**

Reg. 11: Channel Mask (Bits 0-7 = Channels 0-7)

### **LUT:**

Pedestal subtraction/Gain Adjustment for each PMT

### **Algorithm Latch: 7**

### **L0 Output to DSM:**

(0-11) : DA + DB Sum (Saturated)

(12-15) : Unused

(16-27) : DC + DD Sum (Saturated)

(28-31) : Unused

**Actions :**

Tick	QT8A	QT8B	QT8C	QT8D
1	Mask Channels / Latch Inputs	-	-	-
2	Sum (0,1) Sum (2,3) Sum (4,5) Sum (6,7)	-	-	-
3	Sum (0,1,2,3) Sum (4,5,6,7)	-	-	-
4	Sum (0,1,2,3,4,5,6,7)	-	-	-
5	Latch Out Sum_A	Sum_B_Del1	Latch Out Sum_C	Sum_D_Del1
6	-	Latch In Sum_A Sum_B_Del2	-	Latch In Sum_C Sum_D_Del2
7	-	Sum (DA, DB)	-	Sum (DC, DD)
8	-	Latch Out Sum_AB	-	Sum_CD_Del1
9	-	-	Latch In Sum_AB	Sum_CD_Del2
10	-	-	Latch Out Sum_AB	Sum_CD_Del3
11	-	-	-	Latch In Sum_AB Sum_CD_Del4
12	-	-	-	Latch Out Sum_AB Latch Out Sum_CD