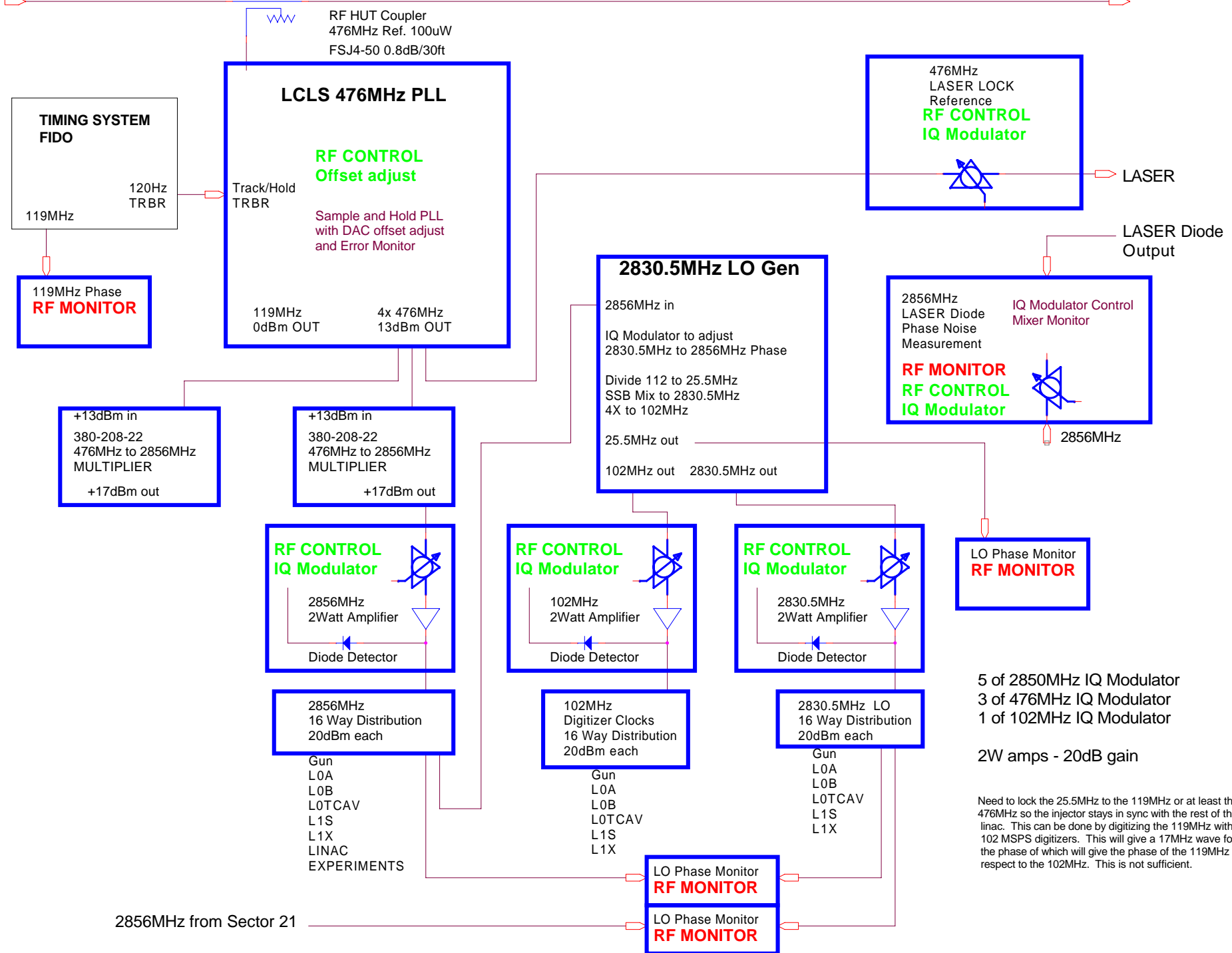


LCLS Sector 20 RF Reference System

Main Drive Line (MDL)
476MHz RF
360Hz Fiducial
From Sector 0 (2km)

MDL to Linac Sectors 21 to 30
PEP and Research Yard



5 of 2850MHz IQ Modulator
3 of 476MHz IQ Modulator
1 of 102MHz IQ Modulator

2W amps - 20dB gain

Need to lock the 25.5MHz to the 119MHz or at least the 476MHz so the injector stays in sync with the rest of the linac. This can be done by digitizing the 119MHz with the 102 MSPS digitizers. This will give a 17MHz wave form, the phase of which will give the phase of the 119MHz with respect to the 102MHz. This is not sufficient.