# TPMON Objective:
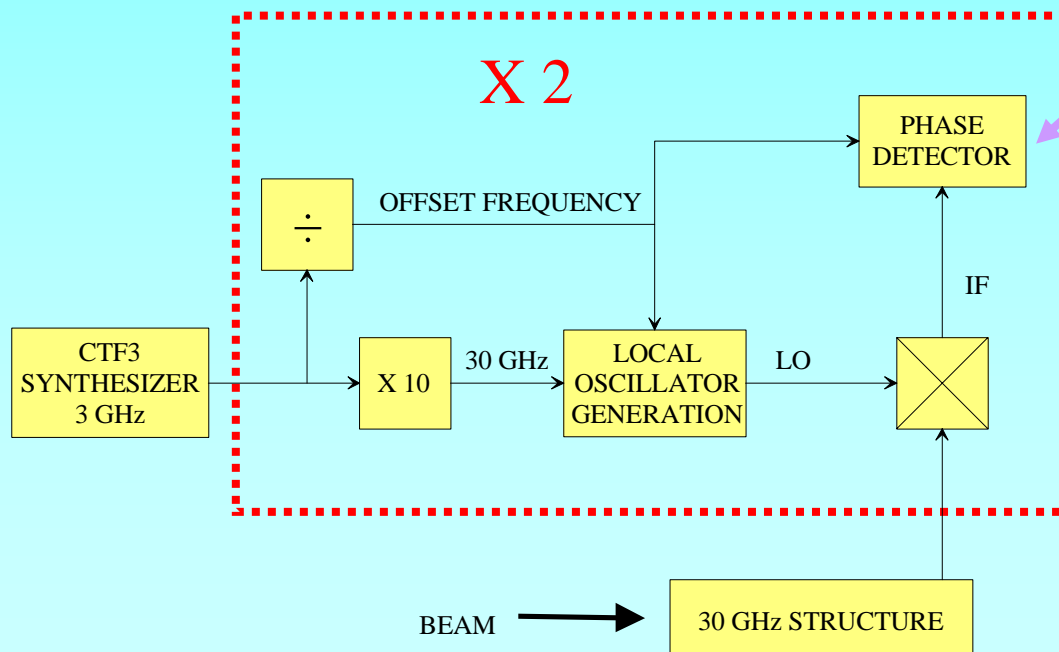## Build and test high precision (10fs) 30GHz beam phase measurement electronics

Phase detector requirements

- Single-shot
- ± 50MHz bandwidth
- 0.1 degree resolution
- Limited linear range OK
- Amplitude range?

X 2

PHASE DETECTOR

OFFSET FREQUENCY

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IF

CTF3 SYNTHESIZER 3 GHz

X 10

30 GHz

LOCAL OSCILLATOR GENERATION

LO

BEAM

30 GHz STRUCTURE