

Radiation tolerance

Radiation hardness
Operating cold (-20°C)
Pixel replacement possible

Pile up **140** → 200
Occupancy **< %**

Increase granularity

Longer latency → **> 10 μs**

Larger front-end **buffers**

Higher L1A rate → **750 kHz**

Bandwidth!

Improve resolution at high p_T
Improve two-track separation

Increase granularity

Improve resolution at low p_T
Reduce secondary interactions

Reduce material

Increase tracking robustness

Mostly through
outer tracker design

Increase forward acceptance

Mostly through **pixel layout**

Improve CMS trigger

Provide tracking to Level-1
40 MHz output for L1