

TIMING SYSTEM AT



J. Jamroz, J. Lidon-Simon, V. Hardion, A. Milan-Otero, D. Spruce, R. Nilsson, L. Malmgren, A. Mitrovic, M. Sjöström

MAX IV Laboratory, Lund, Sweden

- Electron/Photon Path
- Possible Beamlines
- Future Expansion
- Transfer line

SR3GeV

TIM3

RF3~100MHz

STATUS

The details of the final design are ongoing. The poster shows an outline of the timing system for the MAX IV facility that will meet our initial requirements and can be expanded in the future, if new needs arise.

SRs components that require synchronization

	SR 1.5GeV	SR 3GeV
Electron source	Thermionic gun	Thermionic gun
BPM crates	12	60
RF plants	1	3
Pulsed dipole magnet	1x horizontal, 1x vertical	1x horizontal, 1x vertical
Pulsed multipole magnet	1	1
Diagnostic beamline	1	1

SPF

SR1.5GeV

Transfer line 3GeV

Transfer line 1.5GeV

TIM3

RF3~100MHz

EVG

~2x220m

FOUT

~10x150m

FOUTs

~60x35m

EVRS_SR

SR 3GeV Triggers

Timestamp

Beamline Triggers

Timestamp

GPS Time Reference

RF1~80MHz

EVG

~1x250m

FOUT

~3x160m

FOUTs

~28x100m

EVRS

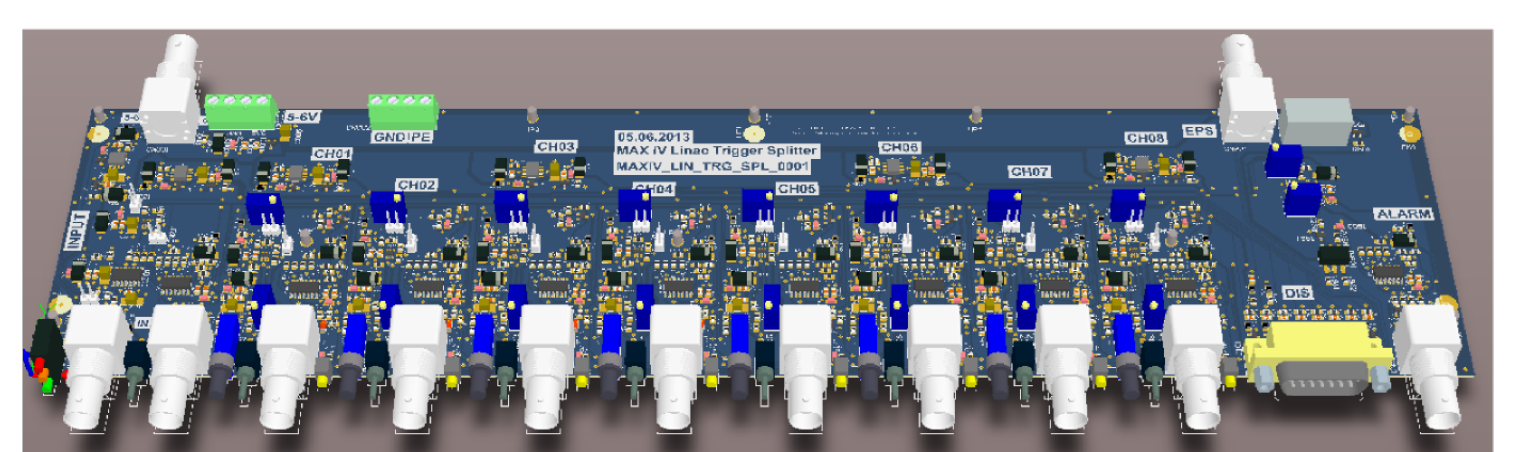
SPF and Linac Triggers

Timestamp

TIM1b

RADIO FREQUENCIES

- RF1 $\approx$ 80MHz for the laser of the photocathode gun driving the SPF (timing 1 - TIM1).
- RF2 $\approx$ 100MHz for SR 1.5GeV (timing 2 - TIM2).
- RF3 $\approx$ 100MHz for SR 3GeV, where RF3 $\neq$ RF2 (timing 3 - TIM3).



A 3D model of a trigger splitter which was developed in-house for TIM1a

TIM3

TIM2

Thermionic Gun

e-

Linac

Photocathode Gun

e-

TIM2

TIM1a

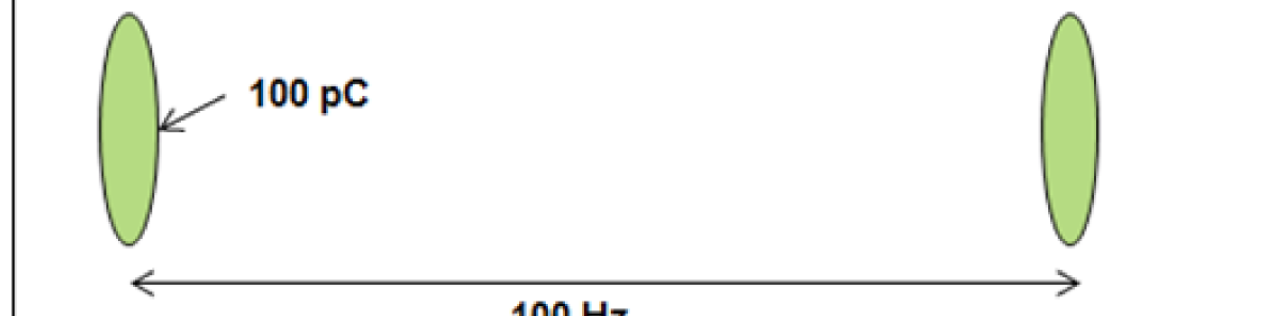
DELAY GENS

RF1~80MHz

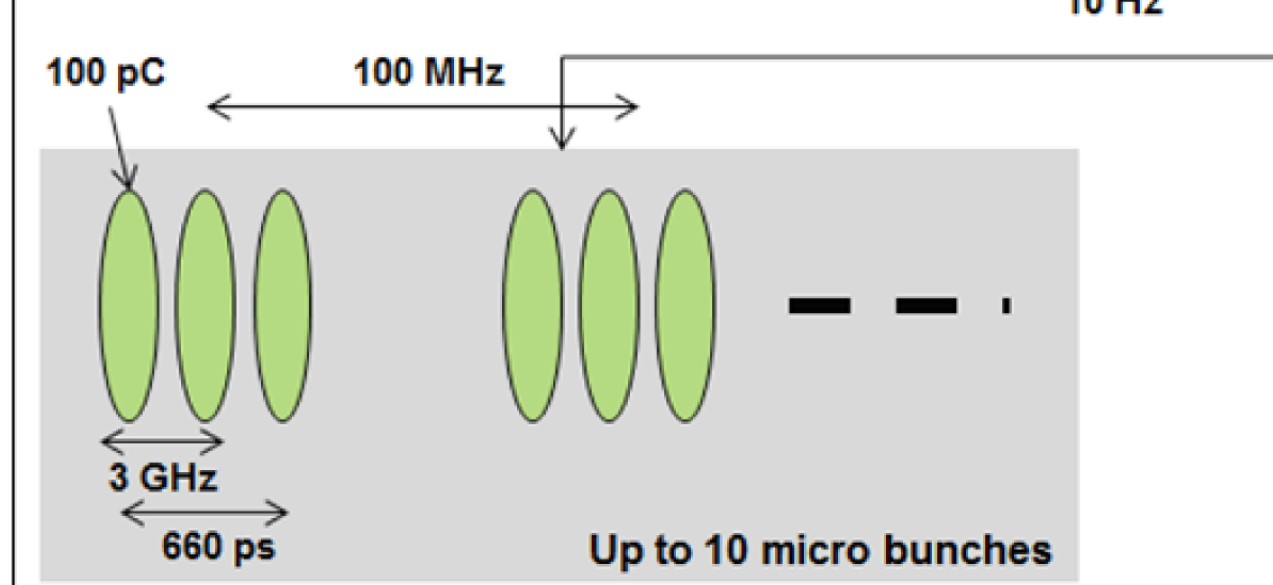
OR

TIM1b

Short Pulse Facility: Photocathode gun (laser)



Storage rings: Thermionic RF gun



Linac electron beam structure for injection into the SPF [A] and any one of the storage rings [B]