The European Free Electron laser (EuXFEL) facility will generate coherent and intense X-ray flashes at up to 27000 flashes per second with a ~4.5 MHz bunch delivery rate. Each flash is intense enough to produce a full diffraction picture of scattering targets.

The Clock and Control (CC) system provides the synchronising clock and bunch related information to the FEM electronics. It also receives status feedback from FEMs and distributes the veto signals to the FEMs to reject some of the detector data.

The CC system consists of a MTCA.4 Advanced Mezzanine Card (AMC) board and a Rear Transition Module (RTM).

The connections to the FEM boards are realised on AC-coupled LVDS links on CAT5 RJ45 cables. The RTM board provides the number of channels to support up to 16 FEM modules for a 1 MPixel 2D detector.

Each channel comprises 4 LVDS pairs on an RJ45 connector:
- Output clock (FAST clock): ~99 MHz clock derived from the 4.5 MHz bunch clock.
- Output data (FAST data): trigger start signal and train ID data
- Veto: bunch reject data encoded on a either 99 or 4.5 MHz clock.
- Status: status feedback from the FEMs.

The CC system receives clock and system information from the EuXFEL Timing Receiver (TR) through MTCA.4 crate backplane.

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The detectors for the 2D camera systems will be able to capture up to 5000 images/second with a resolution of 1 MPixel.

There are three detector designs being developed namely, AGIPD, LPD and DSSC. These three differ in terms of the functionality and the technologies involved in the design, however the overall structure which consists of sensor modules with an ASIC and Front End Modules (FEM) is similar.

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