

**DIGITAL PROCESSING ELECTRONICS FOR THE ELETTRA  
TRANSVERSE MULTI-BUNCH FEEDBACK SYSTEM**

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Coupled-bunch instabilities excited by RF cavity high order modes or resistive wall impedance can seriously limit the performance of third generation synchrotron light sources like ELETTRA. These instabilities can be cured by the use of active feedback systems. In the digital bunch-by-bunch approach adopted at ELETTRA, the position of the 432 bunches is sampled and corrected employing 500 Msample/s A/D and D/A converters. The correction values are computed by a multi-processor architecture made of state-of-the-art DSPs (Digital Signal Processors). A modular design allows to use commercial off-the-shelf components for the most critical parts of the system.