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Preliminary Design of the MAORY@ELT Real-Time Computer

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In this paper we report about the preliminary design of the Real Time Computer (RTC) for the MAORY@ELT Multi-Conjugate Adaptive Optics module for the ESO Extremely Large Telescope. The ELT MCAO module provides high sky coverage, large field, diffraction limited correction in the near infrared. It relies on the use of a constellation of six Laser Guide Stars (LGS) and up to three Natural Guide Stars (NGS) for tomographic atmospheric turbulence sensing, and multiple mirrors (ELT M4 and up to two post-focal deformable mirrors) for correction. In particular, we will discuss the overall RTC architecture, the main control strategy, including provision for vibrations compensation, auxiliary loops and tasks for optimization of correction. We will also briefly describe our product and quality assurance plans.

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