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Architecture and Design of a Small Parallel Supercomputer for Modelling Bolometric Lightcurves of Type II-P Supernovae[1] HYPATIA MERAVIGLIA[2], JEREMY LUSK[3], CHRIS GESKE[4], ZACHARY HUMPHREY[5], DAKOTA LESLIE[6], ERIK STINNETT[7], University of Central Arkansas — Processing raw luminosity of supernovae into lightcurves across a range of observed and unobserved wavelengths requires integration across individual wavelength windows to establish luminosity over a broad range. Martinez et al. (in review, 2021) detail a variety of methods for bolometric lightcurve computation. Different portions of the curve may be modelled simultaneously, making parallel computing potentially useful for lightcurve computation. We have built a six-node small parallel supercomputer (SPS@UCA) to accommodate the bolometric lightcurve computation program SuperBoL (Lusk and Baron, 2017) and future computationally-intensive projects. We present its architecture, design, and specifications, its uses for both computational astronomy and outreach, and a discussion of ongoing modelling.

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