The Birth of the Green Bank Ultimate Pulsar Processing Instrument

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Abstract

The Green Bank Ultimate Pulsar Processing Instrument (GUPPI) is the first member of a family of pulsar machines built in Green Bank with the reconfigurable computing elements and supporting design tools designed by the Center for Astronomy Signal Processing and Electronics Research (CASPER) and collaborators. We present the background on how GUPPI was born, focusing on the design and implementation efforts. Plans for future additions to the machine will be presented, along with some lessons learned from adopting this new approach to backend design.