

MEERKAT GPU X-ENGINE

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The MeerKAT correlator X-Engines are currently running on the SKARAB platform. At SARAO we are busy designing a GPU drop in replacement for the X-Engine in order to evaluate the feasibility of such a solution. This replacement will use the existing xGPU library for performing correlation and accumulation and the SPEAD2 C++ library for handling the high bandwidth input streams. xGPU has been integrated into PAPER and is currently being adapted for HERA. PAPER streamed data over 10GbE to the X-Engines while MeerKAT streams data over 40GbE at a rate of approximately 28Gbps(excluding overhead data). This presentation will discuss the current state of the MeerKAT X-Engine GPU prototype including the technical challenges encountered when adapting xGPU to meet MeerKAT's design requirements. The proposed and tested solutions to these challenges will also be presented. Furthermore the advancement in GPU technology over the last few years and the effect this has on xGPU processing speed will be discussed.