The above diagram represents a state-of-the-art system that could be built from today’s existing or planned components. It features:

- a broad-band (0.5-20 GHz), thermo-electrically cooled/stabilized front-end
- optional 20-40 GHz sub-system, block-down-converted to 0.5-20 GHz
- fiberoptic transmission of the 20 GHz RF from the antennas into the control room
- receivers and subsequent electronics located in the control room (a clean, thermally controlled environment)
- a 500 MHz IF, digitized at 1 GHz
- an all-digital delay and digital lag correlator, with final frequency resolution given by $\frac{500 \text{ MHz}}{m}$ where $2m$ is the number of lags (baselined at 32, for a frequency resolution of 32 MHz)

Probable innovations for final design include:

- expansion of main frequency range to >26 GHz
- expansion of IF bandwidth to >1 GHz
**Fiberoptic Link**

- **RF In**
  - DBF Laser Transmitter (1310 nm)
  - 0.1-20 GHz*

- **Single-mode 9/125 Fiberoptic Cable**
  - Loss~0.4 dB/km
  - BW~90 GHz/km

- **Photo-diode Detector**
  - 0.5-20 GHz

- **RF Out**

* 0.1-15 GHz available now, broader bandwidths under development.
Digitizer/Correlator Block Diagram*

*Correlator design still under discussion