

Proposed US Participation in CORE:
(Draft 2; Hanany, Bock, Nov. 26, 2010)

Total Budget (in 2010 million US\$):

Focal Plane Technologies –	55 (note 1)
Half Wave Plate Modulator -	20 (note 2)
Cooler	45 (note 3)
US Data Center	50
Reaction wheels + other (?)	15

Total US Participation 185

Assessment Phase Budget (in 2010 million US\$)
(Assessment phase is between 2/2011 and 12/2012)

Year 1	1
Year 2	1

Total Assessment Phase 2 (note 4)

Competitive Development Budget (in 2010 million US\$)
(Competitive Development phase is between 1/2013 and 12/2014)

Year 1	2.5
Year 2	2.5

Total Competitive Development Phase 5 (note 4)

Comments and Notes

The US CORE budget is in line with the recommendations of the US decadal panel. The panel recommended augmenting technology development until mid-decade and then ramping up funding up to a level of \$200M in the second part of the decade if there is a detection of the B-mode signal. CORE's implementation phase starts in 2015 at the very earliest. US CORE budget requested until that time is \$7M.

The majority of the expense on the US Data Center will occur in the decade starting in 2020. Therefore actual US CORE costs are less than \$150M in this decade.

Note 1:

Focal plane technologies include design, development, and delivery of polarization sensitive detectors and readout (including SQUIDS) for all the CORE detectors. Testing of a prototype chain is included, but not mass testing of all fabricated detectors and readout elements. Cryogenic cabling harnesses are not included.

Note 2:

The budget includes development of a low power dissipation drive mechanism in collaboration with colleagues in Europe. It also includes contributions to the design and implementation of the HWP itself, again in collaboration with colleagues in Europe.

Note 3:

The cooler is based on the MIRI cooler developed for JWST. The cooler was priced at \$40M in 2009. Costs here include re-design, development and fabrication of a unit for CORE.

Note 4:

The \$2M during the assessment phase will pay for design (\$0.25M), technology development (\$1.5M), and project office costs (\$0.25M). The \$5M during the competitive development phase will pay for design (\$1M), technology development (\$3.5M), and project office costs (\$0.5M).