Basic MIPS Capabilities:

Imaging photometry at 24, 70, and 160 µm and low resolution \((R = 15 – 25)\) spectroscopy between 52 and 97 µm. A fine pixel scale option at 70 µm (no change required for the other two bands), combined with precise subpixel sampling dither patterns, allow data processing to achieve "super resolution" imaging. A cryogenic scan mirror mechanism provides freeze frame scan mapping, efficient dithering, and other instrument capabilities.

MIPS Instantaneous Fields of View:

- **24 µm**: 5.4x5.4 arcminutes
- **70 µm**: 5.25x2.6 or 2.6x1.3 arcminutes
- **160 µm**: 0.53x5.33 arcminutes (effective)
- **SED Slit**: 2.0x0.33 arcminutes (full wavelength coverage)

The MIPS Astronomical Observation Templates:

- **Photometry & Super Resolution**
  - Telescope staring mode imaging photometry
- **Scan Mapping**
  - Freeze frame mapping in all three bands with constant telescope slewing
- **Spectral Energy Distribution (SED)**
  - Low resolution \((R = 15 – 25)\) spectroscopy over 52 to 97 µm
- **Total Power Mode**
  - Zero level brightness of very extended emission

The MIPS Detector Arrays:

- **24 µm**
  - Si:As (IBC)
  - 128x128 pixels; 2.55"
  - 4.7 µm bandwidth
- **70 µm**
  - Ge:Ga
  - 32x32 pixels; 5.3" or 9.96"
  - 19 µm bandwidth
  - SED \(R = 15 – 25\) (9.8" pixels)
- **160 µm**
  - Stressed Ge:Ga
  - 2x20 pixels; 16.0"x18.0"
  - 35 µm bandwidth

Basic Sensitivities (low background):

5 sigma in 500 seconds on source

- **24 µm**: 110 µJy
- **70 µm default**: 7.2 mJy
- **70 µm fine**: 14.4 mJy
- **SED**: 82/201/447 mJy @ 60/75/90 µm
- **160 µm**: 29 (40 w/ confusion) mJy

Saturation Limits:

Point source in 1 second (Jy); Extended source in 10 seconds (MJy/ster)

<table>
<thead>
<tr>
<th>Band</th>
<th>Point Source</th>
<th>Extended</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 µm</td>
<td>4.1</td>
<td>260</td>
</tr>
<tr>
<td>70 µm (default)</td>
<td>23</td>
<td>101</td>
</tr>
<tr>
<td>70 µm (fine)</td>
<td>57</td>
<td>292</td>
</tr>
<tr>
<td>SED @ 60,75,90µm</td>
<td>250/290/1000</td>
<td>1087/1261/4350</td>
</tr>
<tr>
<td>160 µm</td>
<td>3</td>
<td>20</td>
</tr>
</tbody>
</table>

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(v7.0, updated 31 October 06, JWC)