

# Quantum 270

## Specifications:

### Technical Summary (typical):

**Detector Type:** Array (2 x 2)  
**Active Area:** 270mm x 270mm  
**Inactive width strip:** 400 microns  
**Number of Active Pixels:** 4168x4168; 17.4M  
**Pixel Size at Detector Surface:** 64.8 microns  
**Phosphor (optimized):** 1 Angstrom X-rays  
**Spatial Resolution FWHM:** 90 microns; 1.36 pixels  
**Taper Ratio:** 2.7: 1  
**Optical Coupling (CCD to Taper):** Hard Epoxy  
**CCD Type:** KODAK KAF 4320E  
**CCD Pixel Size:** 24 x 24 microns  
**Operating Temperature:** -45 degrees Celsius  
**Cooling Type:** Thermoelectric  
**Dark Current:** 0.015 e/pixel/second  
**Controller Electronics:** ADSC Custom  
**12KeV X-ray Photon:** 22  
**Vertical Charge Transfer Efficiency:** 99.999%  
**Horizontal Charge Transfer Efficiency:** 99.999%

### Readout Times:

- **Full Resolution:** 1.10 seconds
- **Full Resolution Low Noise:** 1.9 sec (est.)
- **2x2 Hardware Binned:** 0.37 seconds
- **2x2 Software Binned:** 1.10 seconds

### Full Well Depth (low noise MPP mode):

- **Full Resolution:** 520,000 electrons
- **2x2 Hardware Binned:** 520,000 electrons
- **2x2 Software Binned:** 2,080,000 electrons

### Readout Noise:

- **Full Resolution:** 12.0 electrons
- **Full Resolution Low Noise:** 9.5 electrons
- **2x2 Hardware Binned:** 12.0 electrons
- **2x2 Software Binned:** 2x12.0 electrons

### Dynamic Range:

- **Full Resolution:** 41,667
- **Full Resolution Low Noise:** 53,800
- **2x2 Hardware Binned:** 41,667
- **2x2 Software Binned:** 83,333

**DQE:** > 80% (0.9 – 1.5 Angstroms)

**Dimensions:** 15"X 15"X 34" (38.1cm x 38.1cm x 86cm)

**Weight:** 269.3 lbs (122.2 Kgs)