

AMT Common Computer Specification

January 6, 2010

Digital Image Acquisition Hardware and Software

- 1) High speed, industry standard digital interfaces to insure long term reliability and support as computers and operating systems evolve over the life of the product. These include Gig-E Vision (IEEE 802.3z), FireWire (IEEE1394), Camera Link and LVDS/422.
- 2) Graphical user interface designed for good visibility and ease of use.
- 3) Automatic and manual gray scale adjustment.
- 4) Images stored in standard TIFF file format with user selected bit depth (8 or 16). JPEG is also available.
- 5) Full flat-field correction for recorded and live images at full frame rates with noise reduction.
- 6) Imaging conditions stored in individually named files.
- 7) Real-time FFT with spatial and temporal filtering.
- 8) Real-time histogram display with spot mode for exposure control.
- 9) On-line image annotation for scale bar, magnification, stage position, and TEM conditions.

Image Analysis, Image Processing and Data Handling

- 1) Automatic database generation with camera conditions and keywords.
- 2) On-image linear measurements and diffraction measurements for rings and spot patterns.
- 3) "Case Save" function to automatically name and number images being saved.
- 4) Grid overlays for stereology.
- 5) Paint Shop Pro Photo software for photo-enhancement, format conversion, and annotation.
- 6) Integrated functionality with ImageJ to provide
 - a) comprehensive image processing,
 - b) quantitative image analysis and measurement,
 - c) access to extensive, world-wide library of macros and plug-ins

TEM Control and Tomography Support

- 1) SerialEM for JEOL and FEI TEMs
- 2) TIA for Tecnai TEMs from FEI
- 3) TEMography for JEOL TEMs
- 4) Hitachi Tomography and Automation

Montaging

- 1) Automated montage image collection for TEMs with external communications (option).
- 2) Graphics assisted image collection for TEMs without external communications (standard).
- 3) Automated stitching of montage images. (option).

Streaming Video

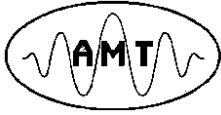
- 1) Embedded functions for generation of AVI from live images.
- 2) Separate TV (RS170) output of live images (option).
- 3) Support for separate high speed SAS-SCSI drives for 5 hour acquisitions.

Selection/Satisfaction/Service = The AMT Advantage

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Validation

- 1) 21CFR11 authentication supported for pharmaceutical applications.
- 2) Security stripe™ protocol for validating individual images.

TEM Communications and Control

- 1) Communication and control through external ports or integration protocols available for newer FEI, Hitachi, JEOL and Zeiss (LEO) TEMs
- 2) Standard package includes automatic readouts for magnification, kV, and stage position plus control of these as TEM allows.
- 3) Embedding into TEM automation packages also available for FEI, Hitachi and JEOL TEMs.

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