

Large-format Scanners

This product survey focuses on high-resolution, large-format scanners with colour depth of up to 48 bits for transferring large-format hardcopy images and maps to digital format. The resulting raster data is meant for use in a GIS environment, either as backdrop or for conversion to vector format, for example by head-up digitisation. Accordingly, the survey does not include photogrammetric scanners.

Most scanners are of sheet-feed-through type. This enables scanning of really large format hardcopies, the length of which may be virtually endless whilst the width may vary from 63.5mm (25 inches) to 137.2mm (54 inches), depending on scanner type. The depth of each of the colour bands may vary between 8 and 16 bits; more bits do not, however, necessarily mean higher quality, because the required number of bits depends largely on noise level and dynamic range of the original document. All the listed scanners are capable of basic input manipulation operations including pre-scanning, cropping, scaling, zooming, angle correction and conversion from colour to B/W. Nearly all digital image processing software delivered with the scanners is capable of standard image processing operations including enhancement, sharpening, softening, contrast manipulation and (adaptive) thresholding.

One should be aware that, in addition to scanning speed, the time necessary for a complete scan of a sheet is determined, among other things, by pre-scanning, (re)selection of scan parameters, visual control and other interactive operations. In addition, operations like transfer of data to host computer, writing data on disk, and image formatting, influence total time involved in the scan. Among the sensors, the most widely used is the trilinear CCD: one CCD for each of the three colours Red, Green and Blue, with 7,500 elements. Scan range is often extended to 15,000, 22,500 or even 30,000 elements by placing two, three or four CCDs in line.

For more thorough consideration of the principles of images sensors of large-format scanners, readers are referred to the Technology in Focus feature in this issue.

Participating Companies

In the survey the following companies participated:

- **Colortrac:** Colortrac SmartLF 4080m/ 4080c/ 4080e, Colortrac enhanced 3640e/ 3680e/ 4260e/ 4280e/ 4860e/ 5480e, Colortrac Flatbed 24120, ANAtch Eagle 27160C/ 42101C/ 42160C/ 62101C
- **Contex Scanning Technology:** CHROMA XL 42, COUGAR Sx 25, COUGAR Tx 36, CRYSTAL XL 42, HAWK-EYE Mx 36, MAGNUM XL 54, PUMA HS 36
- **Esko-Graphics:** EskoScan 2330+, EskoScan 3648+
- **Graphtec:** CS5500/ CS5500 Pro, CS600/ CS600 Pro, IS200/ IS200 Pro
- **GTCO Calcomp:** ScanPlus IV 954C Plus 54" Large format Colour Scanner
- **Hewlett-packard:** Designjet Scanner 4200
- **Vidar:** Atlas SP25, Atlas SP36, Atlas P42, Atlas P54, Nova MX36, Select P42, Titan H36