Hanna-Barbera Productions in Hollywood, California, is the largest producer of animated films in the United States. During a typical television season, they will produce over 100 half-hour episodes. In 1980, they began to implement a plan to automate part of the animation process. While others have attempted to automate cartoon production, the Hanna-Barbera system is unique in the volume of production that it was designed to handle. Nine Grinnell GMR-270 display systems are a key part of their computer-assisted animation system.

Better Flexibility by Supporting Multiple Coloring Stations

Christopher Odgers, Director of Computer Animation Systems at Hanna-Barbera, explains: "The early parts of producing an animated film are very creative. You have people doing storyboards, writing scripts, planning scenes, doing drawings and painting backgrounds. But the later parts of the process are very repetitive. These are the parts that we are now computer assisting.

"The first step in the process is to get the animated pencil drawings and painted backgrounds into the computer. This is done with a Grinnell image processing frame buffer. Images from a video camera are digitized and processed by the Grinnell, before being stored on the host system. Processing includes correction to compensate for uneven lighting and camera shading, followed by a contrast enhancement.

"Once the drawings are online, they can be colored by operators using a data tablet and a color monitor. Here, Grinnell frame buffers also play a key part. A color is chosen, and then part of the drawing is pointed to. The area fills with color almost instantaneously. With multiple RGB video outputs, one Grinnell can support several coloring stations simultaneously."
Better Video Quality Guarantees Broadcast Standards Are Met

"When the drawings have all been colored, final production of the cartoon can begin. Utilizing previously entered instructions, the host computer assembles the many components that make up each final animated frame. The completed frame is loaded into a Grinnell, the RGB video outputs are encoded into a broadcast quality video signal, and the finished frame recorded on a video disk. After an animated sequence is built up on the disk, it is automatically transferred to one-inch video tape.

"Later, sound will be added, the tape copied and sent to the network for airing. The tape we deliver to the network must meet FCC requirements for signal quality. The Grinnell is one of the few frame buffers on the market capable of meeting broadcast specifications.

The video characteristics of a display system are an often overlooked specification, but one that was crucial to our application. The video IS our final product."

Better Reliability Means More Productive Time

"Another important aspect of the Grinnell equipment is their reliability. The Hanna-Barbera facility runs 24 hours a day, with the 'Grinnells' in use constantly. During an eight hour day, scanning and coloring of drawings takes place. The rest of the day, and on weekends, production of finished animation is going on. The 'Grinnells' have exceeded Hanna-Barbera's expectations for reliability."

For information on how Grinnell can help you better with changes in image processing and graphic display systems, call or write Grinnell Systems Corporation, 6410 Via Del Oro Drive, San Jose, CA 95119; (408) 629-9191. In Europe: 12, Chausse Jules Cesar, 95520 Osny, France.

Grinnell is a Leading Manufacturer of Image Processing and Graphic Display Systems