EMBEDTEK

CASE STUDY: CART-MOUNTED IMAGING SYSTEM, MEDICAL

Background: Established Medical Device Manufacturer launched a breakthrough microsurgery appliance, which included a high-performance image capture system.

CHALLENGE:	EMBEDTEK SOLUTION
SPEED TO MARKET	In order to launch a new product line ahead of competition, the customer focused their efforts on core technologies: optical hardware and software development. EmbedTek's design team worked concurrently on the computing system, with established touch points to assure program coordination. Using COTS components in a custom chassis design, EmbedTek delivered the Production First Article in 16 weeks.
SIZE CONSTRAINTS	An existing cart design allowed limited flexibility on overall dimensions; additionally, aesthetic guidelines established fit and trim requirements. EmbedTek designed a custom chassis around high-performance video cards to fit the cart opening and visually complement the rest of the product family.
THERMAL AND ACOUSTIC MANAGEMENT	The computer system needed to address high thermal output from the video cards, but was constrained by acoustic standards for a point-of-care medical device. EmbedTek used CAD software and thermal imaging tools to quickly evaluate several candidate configurations that would fit in the narrow cart design, then validated the proposed design utilizing state of the art test equipment before delivering an early prototype.
EXTENDED PRODUCT LIFECYCLE	Business models for the proposed product indicated that there would be marketplace opportunity, which included strategic upgrades, for about five years. The customer feared that COTS components (especially short life video cards) would have lifecycles not aligned to the rest of the system. EmbedTek worked closely with suppliers to identify embedded components with longer availability and compatible upgrade components. EmbedTek takes responsibility for the supply chain, simplifying purchasing and giving the customer just one SKU to manage instead of several.
OVERALL COST CONTROL	EmbedTek addressed cost controls in three ways: First, providing experienced design and validation at an NRE cost that compared favorably to in-house development; second, by providing scalable manufacturing capacity operating to ISO13485 standards with no capital outlay from the customer; and third by reducing the cost of procurement and lifecycle management over the program lifecycle.

SINGLE SOURCE SOLUTION FOR MEDICAL DEVICE CHALLENGES: EmbedTek designs and manufactures purpose-specific computers and integrated displays. We leverage COTS technology in a US facility operating to the ISO 13485 standard (Class 1000/10000 Clean Room).