



CASE STUDY

IHSE GmbH

ExtremeUSB® Enables True USB 2.0 on High Resolution
KVM Switch and Extension Solutions
of Cat 5 KVM Extension System

IHSE is a German developer and manufacturer of KVM switches and extenders with a distribution network in 30 countries.

As the global market for distributed computing and remote desktop solutions grows, companies continually strive to differentiate their systems from competitors. Celebrating its 25th anniversary, IHSE GmbH is a recognized technology leader in Video and KVM switching, extension and conversion. The Company offers cutting-edge technology products for distribution and switching of PC desktop Video and KVM signals over Cat 5 or Fiber Optic cables.

IHSE produces a full range of leading edge products including DVI KVM extenders for single, dual, and quad displays. All popular video and peripheral interfaces from HDMI v1.3, DVI, dual link DVI, 3G SDI, component, composite, s-video, VGA and DisplayPort, to Firewire, RS-232 and USB 2.0 are supported.

IHSE's products service a wide range of end applications where centralized computing and multiple user workstations enhance operating efficiencies. Industries as varied as broadcasting and AV, heavy industry, dispatch and control centers, government and military all utilize IHSE's KVM solutions.

The Challenge

KVM switching solutions enable desktop access to multiple computers. Users can access servers located in a central location without having to connect a keyboard, mouse and monitor to every machine. When combined with extension solutions, a KVM switching installation provides true desktop connectivity that can be distributed throughout an



Draco™ Extenders

“Our partnership with Icron helped us stay focused on our core business of designing sophisticated video extension and switching technologies for demanding customer applications. The combination of Icron’s proven ExtremeUSB® technology and excellent engineering support significantly reduced our product development time and minimized our risk.”

Dr. Enno Littmann, COO of IHSE



CHALLENGES

- Integrating high speed USB 2.0 at 480Mbps and high resolution DVI video up to 1920x1200@60Hz over Cat 5 and Fiber Optics
- Connect 16 independent user workstations to up to 1024 CPUs at distances of up to 10km

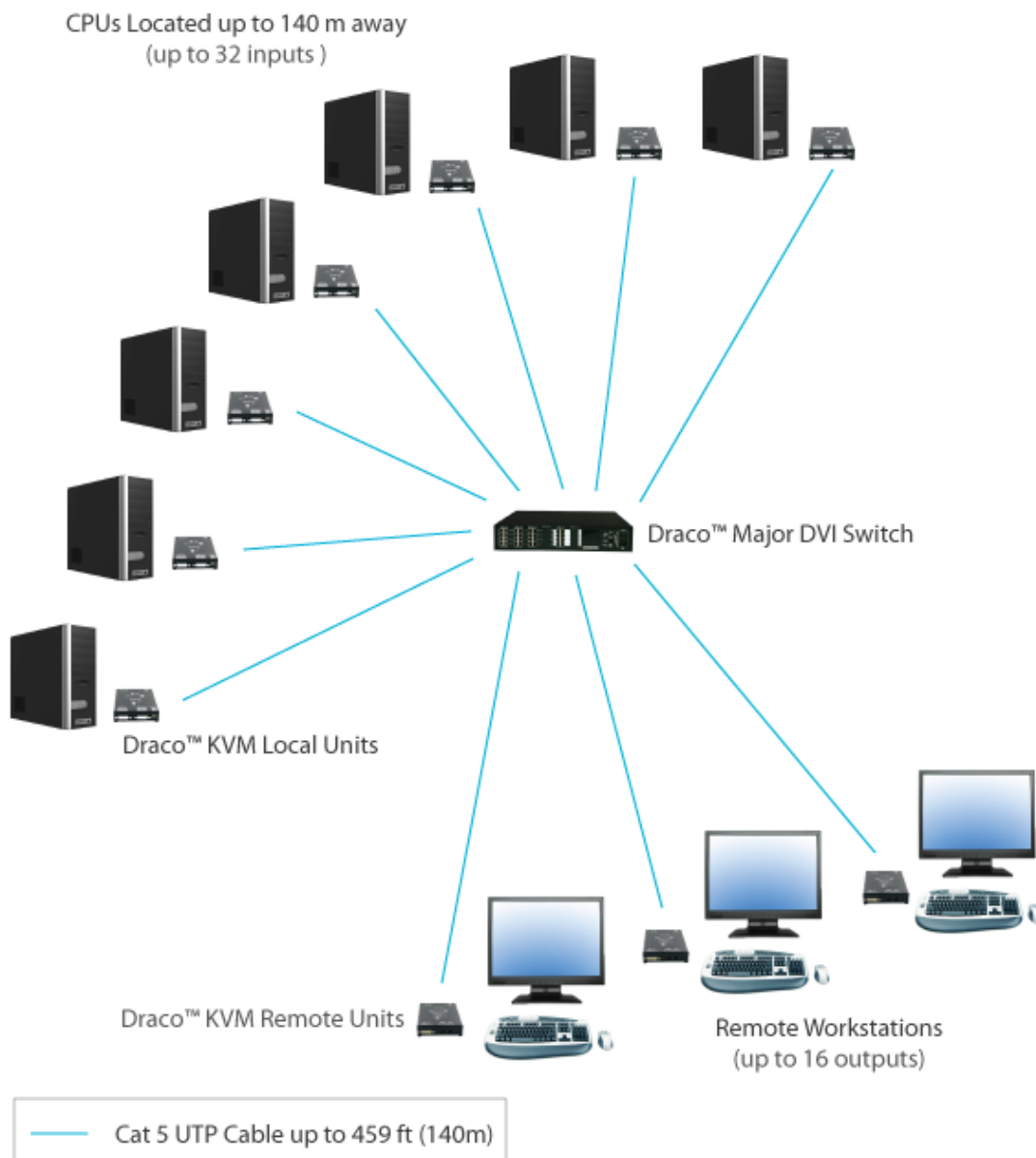
SOLUTION

- Icron's low risk embedded ExtremeUSB® technology, with maximum design flexibility supporting distances up to 459 feet (140m) over Cat 5 and up to 6 miles (10km) over Fiber Optics

enterprise, delivering a complete computing experience while reducing installation complexity and clutter, improving heat, power and noise characteristics and maintaining an easily monitored and secured central computing hub.

For IHSE's new line of Single/Dual Link, Single/Dual Head DVI + Audio KVM extenders, the company wanted to move beyond standard keyboard and mouse desktops and support the Billions of USB peripheral I/O devices in the market.

KVM Extension and DVI Crosspoint Switch Application over Cat 5



The IHSE Draco™ Major DVI Switch connects computers and workstations by connecting the local and remote KVM extension units, and peripheral USB devices using Cat 5 UTP Cables at up to 459 feet.

In particular, IHSE wanted to add true USB 2.0 connectivity to provide flexibility and a rich desktop experience to their customers. IHSE had the added challenge of matching the USB connection reach to their DVI extension technology; up to 140m over Cat 5 and 10km over fiber optics. They found their solution with Icron's ExtremeUSB technology.

The Solution

IHSE chose Icron's ExtremeUSB® technology to deliver true USB 2.0 over long reach connections. ExtremeUSB® is ideally suited for this application, a simple hardware solution requiring no software drivers, and compatible with all mainstream operating systems, ExtremeUSB® provides true USB 2.0 connectivity for all USB device types at reaches up to 140m over Cat 5 and 10km over fiber optics. For the Draco product IHSE selected Icron's proven ExtremeUSB® Core 2100 modules. The compact embedded modules ensured a minimal risk for the IHSE design team to meet delivery and performance expectations.

"Our new DXXi, DSXi, DVXi, and DDXi DVI products now offer Video, Audio, and true USB 2.0 all in one powerful KVM Extender," comments Dr. Enno Littmann, COO of IHSE. "During our tight product development schedule, Icron has proven to be a reliable and flexible partner, the combination of IHSE's and Icron's technology produced a high quality product that our customers love," added Littmann."

IHSE's KVM Extenders are compatible with the IHSE Draco™ Switch technology that gives users the ability to have a matrix of computers and extenders, with users choosing which machine to control from any workstation. The Draco™ DVI KVM switch allows 16 independent users to remotely connect up to 1024 computers with full USB peripheral I/O support.

Application Scenarios

Industrial Scenario

A development or data analysis company will often locate and secure servers in a temperature controlled, centralized location. The KVM switching and extension solution allows for workstations to be placed as needed throughout the offices. Each desktop workstation can select and connect to any server from the centralized location. With short key/mouse commands users can switch quickly and easily to display and control different desktops as required. With ExtremeUSB®, additional USB peripherals such as USB speakers, flash drives, and webcams can also be connected at any workstation to enhance the capabilities and user experience.

Education Scenario

A distributed KVM switch and extension solution is ideally suited to enhancing the classroom experience. With an individual workstation at each desk, teachers and students can interact on shared or individual lessons. Instructors can provide rich multimedia presentations to enhance the learning experience and collaborate with students collectively or individually by sharing or accessing individual student desktops. ExtremeUSB® enables connection of a wide variety of devices from storage devices for distributing or saving content to web cams and audio devices that aid in enabling an interactive learning environment.

The Result

Icron's ExtremeUSB® technology breaks through the five meter USB cable limit and enables all USB peripheral devices to function as if they were directly connected to the host PC, without the need of any additional software drivers. By integrating Icron's ExtremeUSB® technology into their DVI KVM extender systems, IHSE delivers high definition video, audio and complete USB peripheral support on multiple computer systems up to 140m over Cat 5, or up to 10km over fiber optics.

The combination of IHSE's KVM Extender and Draco™ switch products offers unparalleled flexibility in remote computing in any environment. The partnership between IHSE and Icron continues to enable unique product development meeting the diverse KVM extension and switching application needs in multiple markets.

About IHSE's Product Lines

IHSE's products include high speed DVI/KVM/USB 2.0 switching, with a wide range of support products such as DVI KVM extenders for single, dual, and quad displays, including USB 2.0 extension, RGB/VGA/SDI to DVI converters, and 4, 8, and 16-port DVI splitters. All popular interfaces like HDMI v1.3, DVI, dual link DVI, 3G SDI, component, composite, s-video, DisplayPort, Firewire, USB 2.0, VGA, RS-232 are supported directly, via adapters or converter devices. Newer uncompressed DSXi extenders over 50 m+ Cat 5 cable support resolutions to 2048x1152, and the DXXi extenders support Dual Link DVI up to 2560x2048 HDCP and USB 2.0 over multimode fiber. Latest innovations include the Draco™ major DVI switch, a milestone in the world of Matrix Switches enabling the highest quality resolutions (1920x1200) over long distances with multifaceted possibilities.

About Icron

Icron Technologies (TSX-V:IT) is a global leader in the design and manufacturing of high-performance PC Video and USB extension solutions for commercial and industrial markets. Icron's patented ExtremeUSB® technology extends the range of any USB peripheral device over Cat 5, Wireless, Fiber and Powerline, at distances up to 25 miles (40km). Icron's extension products are deployed in a wide range of applications including: digital home connectivity, industrial automation, medical imaging, aerospace, and KVM extension. Icron's ExtremeUSB® technology is available in a variety of formats including branded and private-label products, OEM modules, and Integrated Circuits.

Icron is a publicly traded corporation and trades under the symbol "IT" on the TSX Venture Exchange. For more information on the company and its products, please visit www.icron.com.

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