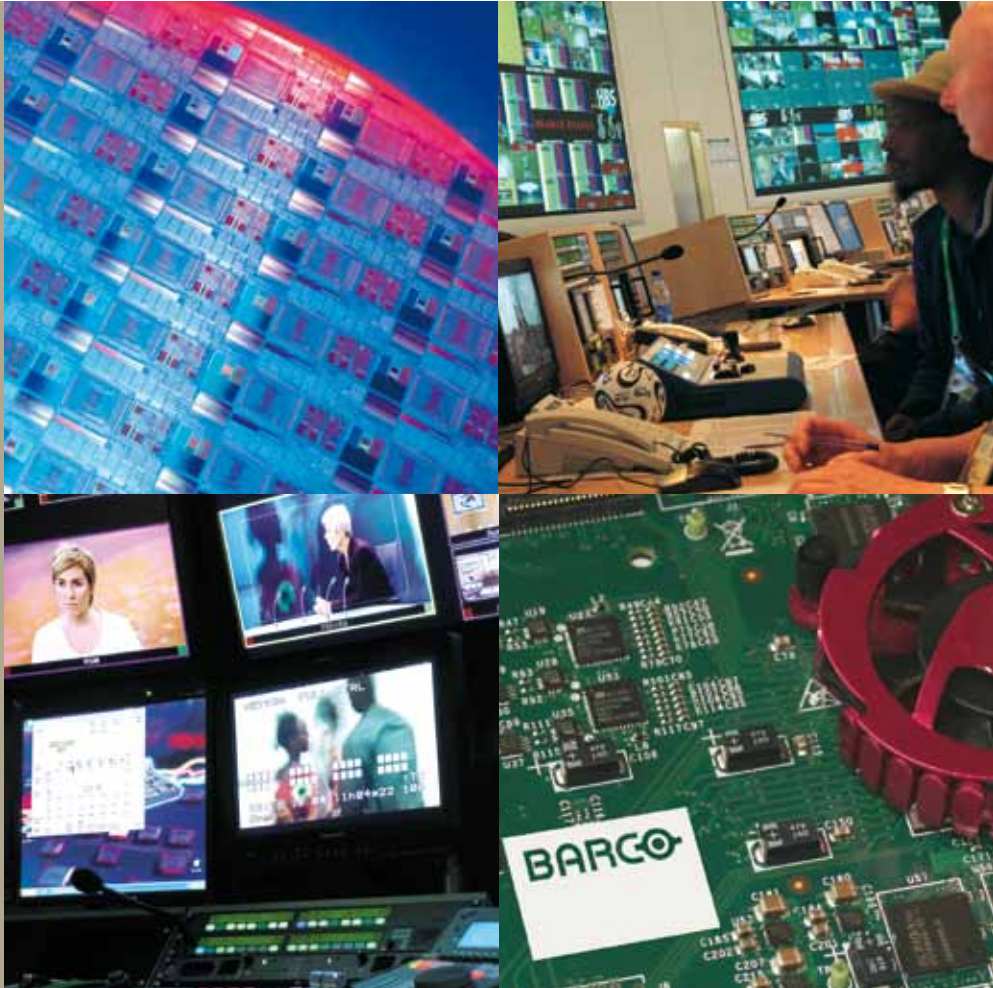


JPEG 2000 solutions

Overcoming challenges through smart design



- Support for untiled 1080p and 4K images
- Support for sub-frame latency
- Support for multi-channel processing
- High performance across a broad range of JPEG 2000 options
- Built for high-speed applications
- Cost effective single chip solutions
- Minimized obsolescence risks

BARCO

Visibly yours



From IP core to board

- Encoder + decoder IP cores (ASIC, FPGA)
- Reference design
- Acceleration boards
- Customization capabilities

Barco Silex is a wholly-owned subsidiary of Barco, the 3,500-employee global technology company that specializes in professional visualization products.

As such, it has complete access to the resources, skills and expertise of Barco's worldwide network of research, development and support services.

Barco Silex

An undisputed center of excellence for JPEG 2000 solutions

Barco Silex is a leader in contract engineering services, custom hardware and software development, as well as hardware IP core products. Its high-quality JPEG 2000 IP cores are optimized for all leading-edge FPGA, ASICs as well as for former platforms. Barco Silex offers also a family of Crypto, Security and Memory Controller IP.

Thanks to its continued stream of innovations, Barco Silex stays ahead of

the competition. Barco Silex's history as custom electronic design house (ASIC, FPGA, DSP, Board) specialized in video coding goes back to 1991 and offers the best guarantee for continuous support throughout the complete lifecycle of products.

This latest generation of Barco Silex JPEG 2000 solutions comprises remarkably flexible, high-end products that can more than meet the requirements

of demanding applications such as acquisition, production, wireless video, broadcast, and digital cinema. And these deliver real-time coding of multiple high-resolution channels – in spite of being both compact and affordable.

Best of all, the people at Barco Silex offer unrivalled customization services, and flexible and continuing support that can last throughout the lifecycle of every product.

The best JPEG 2000 solution for your JPEG 2000 challenge

JPEG 2000 IP cores

We at Barco Silex have developed a range of JPEG 2000 cores suitable for every performance intensive application. Those remarkably flexible cores have already been proven in high-end market environments, and support multi-channel **DCI 2K and 4K, HD 1080i and 1080p**.

We have architected our latest generation of cores to provide the highest standards of performance quality, flexibility, speed and compactness.

- **Quality:** support of untiled images for 1080p and 4K.
- **Flexibility:** support for the widest spectrum of JPEG 2000 options, including configurable frame size, lossless and lossy compression schemes, and software-based user control across all parameters.
- **Speed:** Barco Silex actively targets the fastest applications where tens or hundreds of millions of samples per second are processed.
- **Compactness:** cost-effective, single-chip solutions with limited pin counts.

Barco Silex cores are not restricted to a single device type. They are optimized for **FPGA** and **ASIC** technologies.

JPEG 2000 IP cores

- DCI 2K, DCI 4K, HD 1080i, HD 1080p
- FPGA, ASIC, structured ASIC
- High-quality, fast, compact
- Flexible multi-channel implementation
- Encoders and decoders

JPEG 2000 ASIC

We have been designing ASICs since 1991 and have worked with many foundries all over the world. This has brought us an acknowledged leadership in the field that many of our **ASIC JPEG 2000 solution** customers find valuable. We offer a completely customized ASIC flow with full JPEG 2000 integration delivered as prototypes. Naturally, we can also manage production, on request.

Our engineers provide expert advice on the most appropriate solution for each customer. For example, someone requiring low to medium volumes would



normally find a **structured ASIC** product, with its low entry costs, most cost effective. Meanwhile, we would usually advise a customer with a requirement for medium to high volumes to opt for a **standard cell ASIC** solution, which has a low unit cost.

The possibility of any standard IC becoming obsolete is an ever-present risk. However, that risk can be managed by conversion to technologies that carry long-term support. Barco Silex has extensive experience in providing end of





life solutions for discontinued ASIC/ICs. Moreover, the company's solid history is your best guarantee for reliable and enduring solutions.

JPEG 2000 ASIC

- Custom integrated solution
- Low entry cost structured ASIC
- Low unit price standard cell

JPEG 2000 DCPB-2000 Boards

The **DCPB-2000** is a PCI-Express acceleration board family, which performs JPEG 2000 compression and decompression. It is capable of processing HD 1080p60 and DCI 2K streams in real time.

Simply by plugging a member of our **DCPB-2000** product family into a PC, you can achieve tremendous acceleration in the JPEG 2000 processing flow. Indeed, one can easily reach real-time coding of very high resolution pictures, such as 2K digital cinema frames or 1080p HD pictures.

Making no compromise on quality, the DCPB-2000 family is able to encode and decode untiled images at resolutions up to 1080p and DCI formats up to 4K. Even in such a demanding environment, no tile effects appear and very high standards of quality are preserved. Moreover, the DCPB-2000 family features a unique rate allocation module, which can be configured in constant bitrate or constant quality mode. So the user can generate high-quality JPEG 2000 codestreams at various bitrates.

Because they are so compact, DCPB-2000 boards make an excellent alternative to PC clusters. Although they offer a real-time encoding and decoding capability in a PCIe form factor, they are built on FPGA technology, which provides the added advantages of flexibility and upgradeability, along with a lower risk of obsolescence.

The DCPB-2000 can be used for a wide variety of applications such as acquisition, production, archiving, mastering and contribution networks.

Features

JPEG 2000 IP Cores

Reference	Core
BA109	High-Definition video/Digital Cinema JPEG 2000 decoder (HD/DCI)
	Complete JPEG 2000 decoding solution for high-end video storage, transmission and digital cinema
	Single tile image up to 4K, 2K, 1080p and 1080i, 720p, ... Support for multi-channel processing (well suited for stereoscopic 3D) XYZ, RGB, YUV (4:4:4 or 4:2:2) color spaces Up to 12 bits per color component
BA110	High-Definition video/Digital Cinema JPEG 2000 encoder (HD/DCI)
	Complete JPEG 2000 encoding solution for high-end video storage, transmission and digital cinema
	Single tile image up to 4K, 2K, 1080p and 1080i, 720p, ... Support for multi-channel processing (well suited for stereoscopic 3D) XYZ, RGB, YUV (4:4:4 or 4:2:2) color spaces Up to 12 bits per color component Flexible optimal rate allocation
BA129	Sub-frame latency JPEG 2000 decoder
	Complete JPEG 2000 decoding solution for low latency video processing
	Single tile image up to 4K, 2K, 1080p and 1080i, 720p, ... XYZ, RGB, YUV (4:4:4 or 4:2:2) color spaces Up to 12 bits per color component
BA130	Sub-frame latency JPEG 2000 encoder
	Complete JPEG 2000 encoding solution for low latency video processing
	Single tile image up to 4K, 2K, 1080p and 1080i, 720p, ... XYZ, RGB, YUV (4:4:4 or 4:2:2) color spaces Up to 12 bits per color component Flexible optimal rate allocation

JPEG 2000 Boards

Reference	Specifications
DCPB-2100 series	High-Definition/Digital Cinema JPEG 2000 encoder and decoder boards
	PCI-Express acceleration boards for processing of broadcast/digital cinema content
	ISO/IEC 15444-1:2004 compliant Single tile images up to 1080p, 2K and 4K YCbCr, RGB, XYZ color spaces Lossy and lossless encoding up to 12 bits per color component Flexible optimal rate allocation Windows and Linux SDK, including drivers and API

Barco JPEG 2000 solutions

Barco is a recognized industry leader with many years' experience in all aspects of display technology. It has established reputations both for innovation and excellence, and consistently delivers high-grade solutions and design services across a wide spectrum of applications. The company's unique blend of extensive experience and unrivalled competences

makes Barco the partner of choice for custom imaging projects.

From concept development to warehouse delivery and beyond, Barco offers a comprehensive range of services that can be customized to complement each customer's needs and in-house skills.

Barco's expertise is supported by a world-wide network of research, development and support services. And the company's partnership approach is reinforced by its global sales organization, which provides customers with regional support people who understand both their languages and their individual requirements.



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Request more information

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