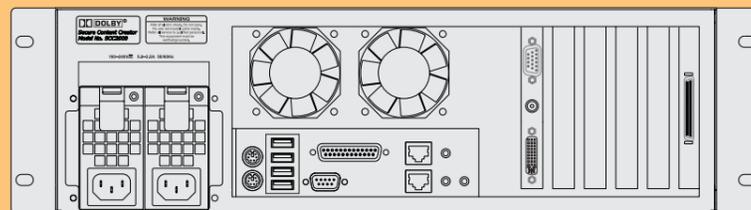


## SCC2000 Front Panel



## SCC2000 Rear Panel



### General Hardware

#### Content Hard Disk Drives

Fully redundant RAID 5 system  
1.2 TB of usable storage (within chassis)

#### Power Requirements

100-240 VAC 50-60 Hz, 500 W max.  
Dual redundant power supply designed to operate from a centrally switched power source

#### Dimensions

3-U rackmount chassis; 132 x 483 x 580 mm  
(5.25 x 19 x 23 inches)

#### Environmental Conditions

Operating 0 to 40°C (32 to 104°F),  
fan cooling  
20% to 80% relative humidity  
(non-condensing)

### Front Panel

#### Removable Media

Removable SATA hard disk drive for optional master DCP creation  
DVD-ROM drive for software updates

#### Status LEDs

Bicolour LEDs show status of power supply, temperature, and internal hard disk drives

#### USB

Type A connector

### Rear Panel

#### USB

Four type A USB connectors

Provides connection for software protection device

Provides connection for optional Cat. No. 999 Key Management Module

#### PS/2

Two PS/2 connectors for keyboard and mouse (not supplied)

#### Network Connections

Two RJ-45 female connectors; 10/100/1,000 Base-T with auto detection

#### Serial Data

9-pin female D-connector, RS232 (not used in a typical installation)

#### Parallel Data

25-pin female D-connector (not used in a typical installation)

#### Monitor

15-pin high-density female D-connector for VGA monitor (not supplied)  
DVI-D connector for DVI monitor (not supplied)

#### SCSI Connection

High-density SCSI Ultra320 connection for optional external storage

### Software

#### Operating System

Linux 2.6.15 (Ubuntu 6.0.6 distribution)

#### Uncompressed Image Input

TIFF, OpenEXR and DPX files  
Active area up to 4096 x 2160 pixel resolution  
RGB, R'G'B', XYZ and X'Y'Z' colour

#### Compressed Image Input

JPEG2000 files encoded to ISO 15444-1 2004, per DCI specification  
MPEG2 files (MP@HL) in accordance with MXF Interop specifications

#### Audio Input

Broadcast wave files, uncompressed, 24-bit, 48 or 96 kHz  
Main audio track interleaved as single broadcast wave file with optional secondary (mono narration) track

#### Subtitle Input

XML subtitle files according to CineCanvas™ specification

#### Image Encoding

JPEG2000 encoding to ISO 15444-1 2004 per DCI specification using internal or distributed node processing  
RGB, R'G'B' or XYZ pre-processing to X'Y'Z'  
Encoding to target bit rate or Perceived Signal to Noise Ratio (PSNR) quality metric

#### Encoding Quality Control

Reporting based on PSNR and bit rate analysis of each frame during encode  
Compliance with ISO 15444-1 verified on each frame during encode

#### Composing and Packaging

Creates MXF Interop or SMPTE/DCI compliant Digital Cinema Packages (DCPs)  
Provides encryption for all assets using optional Cat. No. 999 Key Management Module

#### Limitation of Liability

It is understood and agreed that Dolby Laboratories' liability, whether in contract, in tort, under any warranty, in negligence, or otherwise shall not exceed the cost of repair or replacement of the defective components or accused infringing devices, and under no circumstances shall Dolby Laboratories be liable for incidental, special, direct, indirect, or consequential damages (including, but not limited to, damage to software or recorded audio or visual material), cost of defense, or loss of use, revenue, or profit, even if Dolby Laboratories or its agents have been advised, orally or in writing, of the possibility of such damages.

#### Warranty

One-year limited, parts and labour; see disclaimer. Specifications subject to change without notice.

#### Disclaimer of Warranties

Equipment manufactured by Dolby Laboratories is warranted against defects in materials and workmanship for a period of one year from the date of purchase. There are no other express or implied warranties and no warranty of merchantability or fitness for a particular purpose, or of noninfringement of third-party rights (including, but not limited to, copyright and patent rights).

#### Regulatory Notices

North America: This unit complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules, and Industry Canada ICES-003 Class A requirements. It is UL Listed for the US and Canada.

Europe: This unit complies with the requirements of Low Voltage Directive 73/23/EEC and EMC Directive 89/336/EEC and carries the CE marking accordingly.  
RoHS Compliant.

Dolby Laboratories, Inc., Wootton Bassett, Wiltshire SN4 8QJ, England Telephone (44) 1793-842100 Fax (44) 1793-842101  
100 Potrero Avenue, San Francisco, CA 94103-4813 Telephone (1) 415-558-0200 Fax (1) 415-863-1373 www.dolby.com  
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## SCC2000 Secure Content Creator



### Digital cinema content encoding and packaging for all users.

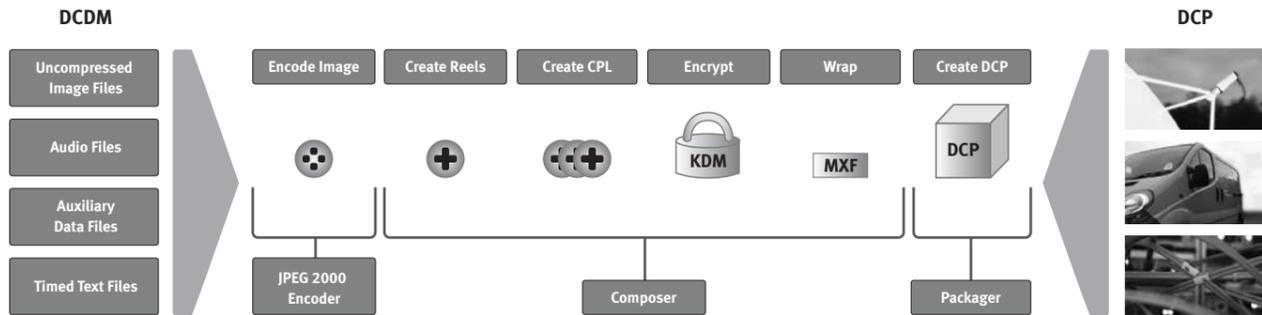
As digital cinema grows globally, one of the biggest challenges is content creation. Getting content, be it a feature film, concert, advertisement, or trailer, onto digital cinema screens can be costly and time consuming. Advances in digital postproduction, such as 4K digital intermediates (DI) and higher bit-depth colour, have increased the demands on digital cinema content creation. Meanwhile, cost of entry has discouraged all but the largest facilities from investing in the tools to create final digital cinema distribution files, known as digital cinema packages (DCPs).

JPEG 2000 compression for D-cinema, either at 2K or 4K, is a task that demands large amounts of processing power in order to be done in a realistic amount of time. In the high-pressure movie postproduction world, this is time that should be as short as possible. Most current hardware and multiprocessor one-box solutions are limited to slower-than-real-time encoding. A different approach is needed to achieve quick turnaround of content. Creating a

DCP should be quick and painless. Easy-to-use interfaces and simple procedures remove the complexity from the task and give users the confidence that they can get it right every time. Encryption is the essential component of digital cinema that secures the DCP from source to destination, and protects valuable content from theft. Encryption should be seamlessly integrated into the DCP creation process and be a robust, reliable, and assured process.

**Introducing the Dolby® SCC2000 Secure Content Creator, a scalable solution to digital cinema compression, packaging, and encryption. It offers a comprehensive suite of software tools for the creation of DCPs ready to go to cinemas. The hardware is designed to work both as a standalone unit and for integration into postproduction DI facilities by high-demand users. The secure key generation option offers key delivery message (KDM) creation and management via the Cosmos digital cinema database, operated by Dolby content-protection subsidiary, Cineas.**

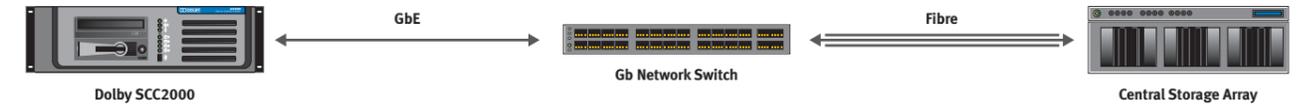
## SCC WORKFLOW



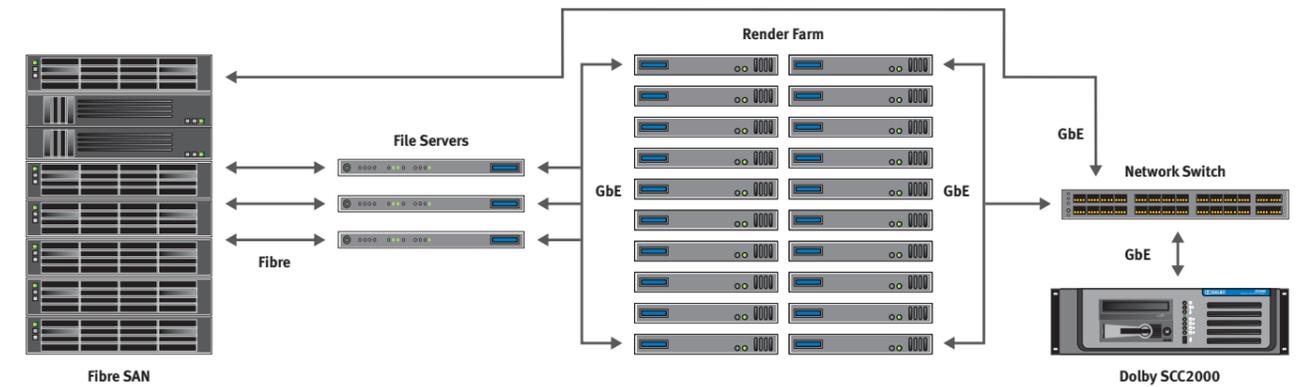
The Secure Content Creator's suite of software offers the complete set of tools needed to take a Digital Cinema Distribution Master (DCDM) and produce a Digital Cinema Package (DCP) ready for distribution to cinemas via satellite, fibre, or physical media. The multi-stage process allows users the flexibility to create a complex multi-version project (for instance, multiple language versions of a movie), with different Composition Play Lists (CPL) easily managed within a single workflow.

## System Integration Examples

**Standalone solution** – This utilises the SCC2000 internal processing power for JPEG encoding. Typically, content resides in a central storage disk array, or on a workstation, connected to the Dolby SCC2000 via the local area network.



**Render farm integration solution** – Typical for a high volume facility, for instance studio postproduction working primarily with 4k DCDM. The SCC2000 sits on the render network, and is connected to the facility's fast DI storage system. In this example, each render node is fed by dedicated GbE connection to the DI storage system, via file servers. JPEG 2000 encoding uses the processing power of the render farm.



### JPEG 2000 Encoding

The SCC2000 is designed to work as either a standalone JPEG 2000 encoder or integrated into a render farm for high-speed encoding. Each render farm unit, or node, works independently on

a batch of image frames dealt out by the SCC2000. By optimising central storage and render node setup, real-time or faster 2K and 4K JPEG 2000 encoding is achievable. Moreover, the system is expandable to meet growing needs as business expands. The Dolby JPEG 2000 encoder software generates 2K or 4K files to the DCI specification. The encoder utilises unique optimisation that allows the user to select profiles for different content types, such as live action or computer-generated images, to provide the best-quality results from encoding. Other user-definable features, such as target bit rate, allow each encode to be tailored to individual needs.



Quality-control tools then allow analysis of the encode, providing perceived signal-to-noise ratio (PSNR) and bit-rate graphs and values for each encode.

### Composer

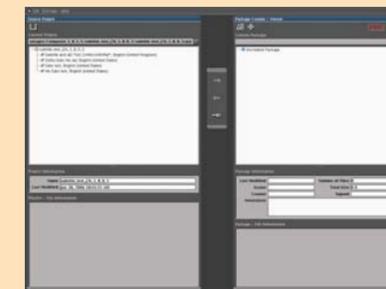
Dolby Composer software allows users to simply and quickly put together a



DCP composition. With a drag-and-drop interface, audio, images, subtitles, and package attributes like encryption, content type, and metadata are all easily added together to form the final DCP. Dolby Composer also makes it easy to manage multiple versions based on common assets in a single project, and to add secondary tracks such as narration.

### Packager

Dolby Packager software creates the distribution DCP, taking the assets for one or many DCPs and creating all associated files required for the distribution media to ensure safe delivery and ingest into the server.



Essential checks on data integrity require asset maps and packing lists, and Dolby Packager makes generating these files quick and easy.

### Cosmos Database

The SCC2000 integrates seamlessly with the Cosmos database, a highly

secure off-site backed-up database that offers simple and reliable administration of KDMs. Access via a Web interface allows users the maximum in flexibility, while 24/7 hotline support from Cinea assures effective and trustworthy KDM management.

