

New Technology.
New Features.
New Potential.

NUENDO 3.

***NUENDO* 3**

MEDIA PRODUCTION SYSTEM

Nuendo 3 is the latest, groundbreaking version of Steinberg's renowned Media Production System, tailored to meet the high-performance demands of pros working in post production, recording, mixing, editing and surround. Functionally comprehensive yet comfortably ergonomic, Nuendo 3 puts your needs first,

and offers you not only the advanced tools you require, but puts them at your disposal in a way that supports workflow efficiency and enhances your creativity. And should you need to interface with other audio or video systems, Nuendo 3 gives you the open, flexible technologies that make this as smooth as possible.



RECORDING

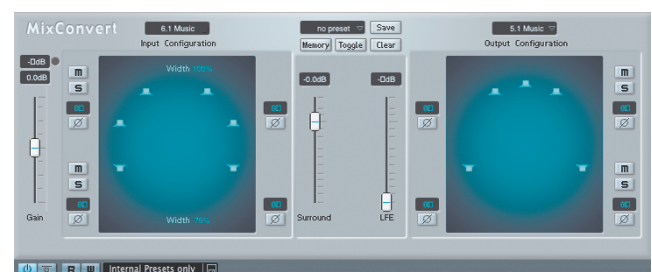
Real-time Audio Warp time-stretching and pitch shifting technology allows instant remolding of audio material to dynamically adapt to your project tempo in realtime, and offers lightning fast, great quality drum timing correction.

The Extended Freeze functionality allows you to free up precious CPU and RAM resources by rendering effect plug-ins and audio channels, including insert effects, with blazing speed.

The built-in 10-minute Pre-Record function records any audio routed to the Nuendo 3 software in the background, without having to press record – no more regrets that you should have recorded a rehearsal performance...

SURROUND/MIXING

Nuendo 3 offers flexible new monitoring options, with both after and pre-fader listen modes available on the new Audition Channel, allowing instant checking of any audio channel while leaving the signal routed to the main output mix bus untouched.



The new MixConvert plug-in included in Nuendo 3 automatically detects the configuration of the channel it's inserted on, and allows instant checking of a mix in other formats – including quick and easy checking for mono compatibility.

Because panners on mono or stereo effect plug-ins routed to surround busses are now directly controllable from the surround panner for that channel, wet effect signals are seamlessly incorporated into surround mixes.

Full AAF integration in Nuendo 3



POST PRODUCTION

New media management tools allow you to easily manage massive audio file libraries, including the ability to provide batch function naming of files, file categorization, and extended file search functionality.

Nuendo 3 also provides support for Pinnacle's X-Send protocol, integrating seamlessly with Pinnacles's Liquid video editing applications, enabling you to take projects completed in these video editors to be opened directly in Nuendo, ready for audio post production.

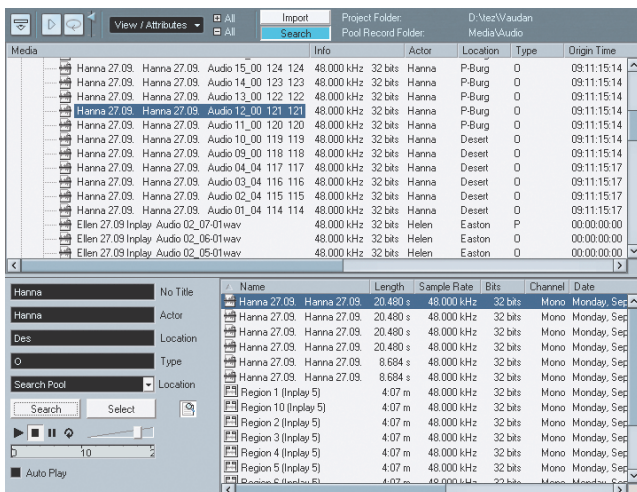
The Nuendo 3 "Warp To Picture" function lets you sync your audio material to video by time-stretching the audio in real-time to fit the picture. This amazingly powerful tool gives you a whole new approach to matching audio to picture.

HARDWARE INTEGRATION

Nuendo 3 features a new external effects plug-in function that lets you seamlessly integrate your outboard effects equipment, including latency compensation of external effects hardware. Integrating your outboard effects gear into your Nuendo projects has never been easier.

The new Device Panels feature allows you to create graphical interface modules that control any equipment that supports the MIDI standard you have connected to Nuendo 3, complete with background bitmaps and color coding.

Nuendo 3 already incorporates Studio Connections Total Recall technology developed by Steinberg and Yamaha, giving you outstanding integration to Yamaha audio hardware such as the DM2000, DM1000, O2r96 and O1x digital mixers.





TIME BASE

VST SYSTEM SYNCHRONISER



SYNCHRONISER WITH VST SYSTEM LINK SUPPORT

Nuendo Time Base is the first synchronizer to support Steinberg's VST System Link technology. A wide range of features for clocking and syncing various external devices makes Nuendo Time Base your perfect solution for sample accurate locking to tape-based audio and interacting with SONY 9-pin compatible devices such as VTRs.

The flexibility of Nuendo Time Base allows it to perform in a multitude of roles, including as a sample-accurate synchronizer, a multiple

output word clock generator, a 9-pin controller, a video inserter and much more. All major Nuendo Time Base functions can be controlled and edited from within Nuendo. Any Nuendo System can be used as a 9-Pin slave in conjunction with Time Base – just hit “Start” and your Nuendo system will follow every command thanks to its Virtual Machine emulation mode. You can also use Time Base to synchronize with other computer-based sequencers, DAWs, or multi-track tape decks via MTC or LTC.

MAIN FEATURES

- Synchronization of digital audio and video systems (hard disk recorders, mixers, etc.) via House Sync, Blackburst, AES-EBU, Word Clock, LTC, VITC, MTC with Audio and Video Tape Machines, Sequencers etc.
- Separate inputs for video sync and VITC R/W
- Read, generate and regenerate timecode (LTC, VITC, MTC and VST System Link)
- Burn visible timecode readout into video picture (2 different sizes, 4 display styles, freely positionable from within Nuendo software)
- Supports all sample rates from 16 to 192 kHz incl. Pull Up/-Down for Film/Video
- Provides Digital Varispeed Engine with a range of +/- 12.5% as well as selectable film transfer rates for 23.9/25, 24/25, 25/24, 25/23.9 pictures
- Controls 9-pin/P2 machines such as Sony U-Matic, Betacam or professional tape recorders such as Tascam DA88, - DA98, - MMR8 or even Sony 3348 HR via standard 9-pin interface.
- Extensive library of supported 9-Pin machines included Virtual 9-pin Machine. Emulation of 4 different 9-pin machines (BVW 75, DVW500, 3348, TM), allows use of Nuendo as a slave machine on professional 9 pin editors and (console integrated) controllers.
- MTC mode allowing TimeBase to run with any software providing MTC sync.



8 EXAMPLES FOR PRACTICAL SETUPS

1. House sync for all digital devices: with its 4 word clock outputs, an AES/EBU output and super-low jitter clock generation, Time Base is a perfect studio clock master supporting sample rates up to 192 kHz.
2. Time Base can lock to a black burst signal. Word clock, AES/EBU and the time code generator are video locked.
3. System Link generator: any time code source – LTC, VITC, 9-pin – is converted to VST System Link data. By connecting the Nuendo audio card to the AES/EBU connections of the Time Base, Nuendo systems will slave sample accurate to the incoming time code and machine control. Time Base can be run as a Virtual Machine and output the necessary VST System Link information (+ LTC, VITC inserter) to the connected Nuendo system(s). The whole system including the time code generator is video locked as long as black burst is fed to the Time Base.
4. The 9-pin Machine or the Virtual Machine can be controlled via MMC in parallel to the controls from the Nuendo system.
5. By using the Virtual 9-pin Machine mode, Nuendo – using VST System Link – behaves like a 9-pin Machine to the controlling system. Four different 9-pin emulations are available. (BVW 75, DVW500, 3348, TM). Depending on the chosen emulation, up to 64 track commands will be supported (track ready).
6. In addition to the video sync loop thru connectors, Time Base offers a video in-/output which is used to read VITC. Insert a VITC signal from the internal VITC generator and use a freely configurable time code burn-in window. The video signal can be fed to the Time Base for time code insertion on video playback. Sizing and placement of the timecode window can be done from within the Nuendo software.
7. NTSC Pull up/down: the Time Base can provide slower or faster clock signals (approx. 0.1%) for NTSC pull up/downs. All devices will receive the changed clock speed.
8. Additionally, the GPI port assures that standard GPI devices used in the studio are controlled by Nuendo via the Time Base (e.g. red-light control).



TECHNICAL SPECIFICATIONS:

- LTC Input: 1/4"D3 balanced jack -10 to +16 dBu
- LTC Output: 1/4"D3 balanced jack -10 to +8 dBu
- VITC-Inserter In/Out PAL/NTSC Format, BNC/SVHS switchable
- VITC Read: 2 lines, lines 10 to 40 or Auto
- VITC Write: 2 lines, lines 10 to 40 or OFF
- TC Video-Inserter: 2 different sizes, 4 display styles, freely positionable
- TC-Standard: 24, 25, 29.97 drop-nondrop, 30 drop-nondrop Fps
- Video Sync In/Out: 2 BNC - high impedance - (Loop Through), PAL/NTSC Format –D0 switchable
- AES-EBU Digital Audio Input up to 96kHz (AES Null) 5V p-p 110 Ohm balanced female XLR
- AES/EBU Output, Sample Rate up to 96kHz with embedded VST System Link, Data stream switchable Professional / Consumer, 110 Ohm balanced male XLR
- 4 Word Clock Outputs, 4 BNC, TTL Level
 - Output 1 switchable to all common frequencies. 16kHz ~ 192kHz
 - Output 2,3 and 4 depending on "Base Frequency" of Main Output and independently switchable to 3 multiples of that frequency.
- USB - Port, direct connection to Nuendo
- 1 GPI/O connector, incl. MIDI In/Out and Red Light Output.
- 9-pin female In/Out connector: RS422 machine control and emulation - 38.4KBit. Directly software controllable. No crossed cables needed.
- Power Requirements: 100 - 240VAC 50/60 Hz auto-switching
- Dimensions: 1U external rack-mount device (W 483 mm x H 45 mm x D 265mm)

TECHNICAL REQUIREMENTS:

- Windows XP or Mac OSX 10.2.6
- Nuendo 2.2 properly installed on system
- USB Port required
- Audio card with S/P-Dif or AES-EBU out for sample accurate sync via System Link

NUENDO SURROUND COMPONENTS

The Nuendo Media Production System offers you the ideal platform for surround production and encoding. The Nuendo multi-channel architecture provides you with the perfect environment for surround mixing, and the optional

surround components give you Dolby and DTS encoding from within Nuendo as well as top quality surround effects making Nuendo the ultimate tool for surround sound professionals.

NUENDO DTS ENCODER

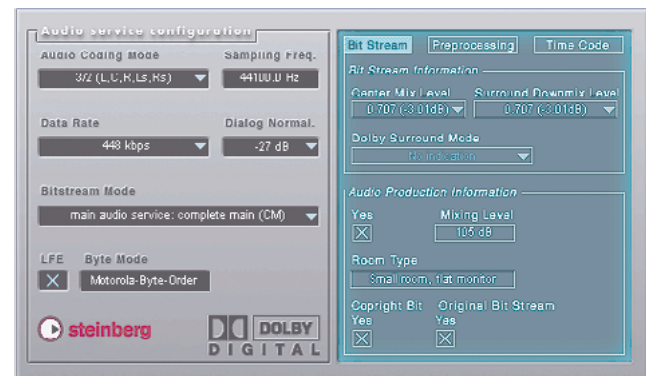
The Nuendo DTS Encoder lets you quickly and easily encode your multi-channel audio in the DTS format. The Nuendo DTS Encoder incorporates the DTS Coherent Acoustics audio compression algorithm, and using this plug-in couldn't be easier. Thanks to the seamless integration into the Nuendo export dialog function, assembling your DTS 5.1 files is simple and straightforward. All routines are automated, so all you need to do is specify which six files are to be encoded. The resulting DTS files are placed on the desktop, ready for you to begin the authoring stage.



NUENDO DOLBY DIGITAL ENCODER

You can create AC-3 format encoded files using the Dolby Digital Encoder plug-in and the export format feature within Nuendo. The implementation is simplicity itself with the smart integration of the AC-3 file format in the Nuendo export dialog.

All of the necessary routines are automated so all you need to do is specify which files should be AC-3 encoded and the resulting encoded files are placed in the chosen folder ready for the authoring stage. You can easily check your files as well with Nuendo, since AC-3 files can be converted on import to verify the integrity of any exported file.



STEINBERG SURROUND EDITION

To fully complement Nuendo's innovative surround mixing tools Steinberg have produced a suite of six 8-channel-capable real-time VST Plug-ins specifically to address the special needs of surround sound mixing and multi-channel audio file creation.

These state-of-the-art plug-ins provide all the processing and 'finishing' tools needed to produce mixes for both 5.1 and 7.1 productions. All of these plug-ins are supplied together as the Steinberg Surround Edition.

OctoQ:

5-band EQ with 2 filters

OctoMaxx:

Soft/hard gain maximiser

Octoverb:

Reverb/Ambience plug-in

OctoComp:

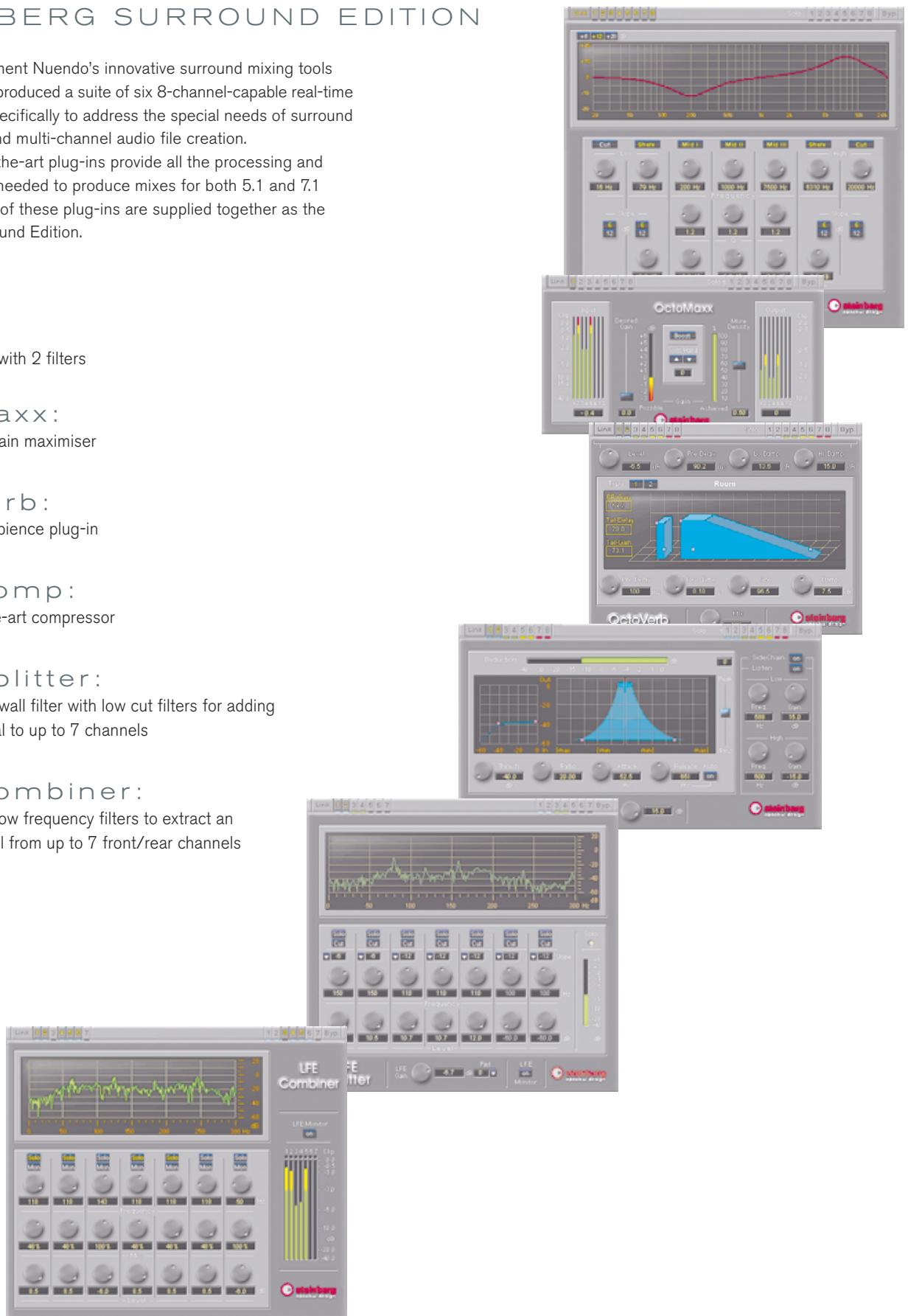
State-of-the-art compressor

LFE Splitter:

24 dB brickwall filter with low cut filters for adding LFE material to up to 7 channels

LFE Combiner:

Adjustable low frequency filters to extract an LFE channel from up to 7 front/rear channels



NUENDO 3 FEATURE LIST

General

- Support of ASIO, MME, DirectX, mLAN and CoreAudio
- Optimized multithreading: unlimited amount of processors supported, processor load is dynamically spread over all processors
- Support of Intel Hyperthreading Technology
- Timeline Formats: Timecode, Feet:Frames (16mm, 35mm), Seconds, Samples, Bars and Beats
- Multiple timelines showing various formats at once
- 1 user definable frame rate
- Complete user configurable software environment: unused menu entries can be hidden, key commands can be disabled, preferences, key commands and the menu structure can be stored and recalled.
- Configurable Track Controls and Toolbars
- User configurable project templates store windows settings, layouts, track heights/sizes, project settings, channel settings, plug-ins and their parameters as well as folders and files in the pool
- Workspaces for managing window sets or entire desktops
- 2nd track list for non scrolling tracks
- Color coding for all tracks and mixer channels, including a new color tool, expanded color palette, view/hide button and more
- Device Maps and Device Panels provide access to external MIDI equipment (synthesizers, signal processors, digital mixers, etc.) as well as access to internal plug-in parameters
- User Panel for Track Inspector allows access to sections of Device Panels or specially designed user panels
- User-definable channel strip in VST mixer as part of Device Panel integration
- Integration of Yamaha Studio Manager 2 (Studio Connections open standard) to access compatible hardware editors, edit and manage devices, and save/recall settings with Nuendo projects (Total Recall)

Import Formats

- Audio: import of AIFF, AIFC, Wave, Broadcast Wave, Wave 64, MPEG (MP2, MP3), Ogg Vorbis, WMA (PC only), WMA Pro (PC only), WMV (PC only), WMV Pro (PC only), REX I & II files, SD2, up to 384 kHz depending on the file format
- Dolby Digital AC-3 import with optional Nuendo Dolby Digital Encoder
- AAF
- AES31
- Cubase SX project
- Open TL 3.0
- OMF 1 & 2, embedded audio or file references
- X-Send support enabling Pinnacle Liquid applications to directly transfer AV projects into Nuendo
- Premiere Generic EDL
- Ability to convert interleaved multichannel file into multiple mono files on import
- CD audio grabbing (selection inside track possible)
- MIDI File import
- MPEG AVI, DV AVI, WMV (PC only), WMV Pro (PC only) and QT movies video import
- Extract audio from video file
- Nuendo track archive including media files, mixer channel settings & automation

Export Formats

- Mixdown to AIFF, Broadcast Wave, Wave, Wave 64, MP3, MP3 Pro, RealAudio G2, Windows Media Audio (PC), Windows Media Audio Pro (PC), SD2 (Mac), Ogg Vorbis, Dolby Digital AC-3 (optional encoder), DTS (optional encoder)
- Supported export sampling frequencies up to 384 kHz (Broadcast Wave, Wave, AIFC), up to 32 Bit float
- Audio mixdown to a mono or multi-channel file up to 12 channels
- AAF
- AES31
- Open TL 3.0
- OMF 1 & 2, embedded audio or file references. Complete OMF revision in Nuendo 2.0
- MIDI File
- Track sheet printing, smart track sheet functions for better overview
- Real-time mixdown option
- Nuendo track archive including media files, mixer channel settings & automation

Synchronization and Machine Control

- Sync to MTC, ASIO Positioning Protocol or send MTC and MIDI clock
- Sync to LTC, WTC with optional Nuendo Time Base Synchronizer
- Two SONY 9-pin transport device panels for controlling external machines
- 9-Pin slave functionality with optional Nuendo Time Base Synchronizer
- User definable settings for optimum adoption to various 9-Pin devices
- MMC transport device panel for controlling external machines
- SMPTE Generator plug-in
- Fast locate and sync lock up
- Sample accurate sync with ASIO 2.0
- MMC slave with track arming support Recording/Playback
- VST System Link for sample accurate sync, audio and MIDI transport between multiple Nuendo systems

Recording/Playback

- Record of 16 Bit, 24 Bit and 32 Bit float audio files; all sample rates up to 192 kHz are supported, depending on the audio card
- Adjustable audio pre-record up to 10 minutes serves as a virtual audio sketch pad: audio clips can be expanded at the event start to reveal pre-recorded data
- Recording of multiple channels of audio simultaneously per track, split or interleaved
- Record of AIFC, Wave, Broadcast Wave and Wave 64 for long duration recordings
- Jog and scrub of the complete project
- Project shutting with fixed speeds, with custom editable key commands, and lock to zoom setting option
- Linear Record modes: Normal, Merge, Replace
- Cycle record modes: Mix (MIDI only), Overwrite (MIDI only), Keep Last, Stacked lanes
- Online recording: record starts when a valid timecode signal is received
- Separate pre roll / post roll settings and separate activity displays in transport
- Multiple user-definable record destinations File Management

File Management

- Pool with logical structure and extensive file information
- User Attributes
- Batch renaming functionality for events, parts, clips, regions
- Import and export of pool files
- Advanced search field with preview option
- Advanced file converter
- Offline processing from the pool
- Minimize function to delete silence & unused material from audio files
- Archive and backup functions
- Libraries can be created and opened including files, file references, regions, subfolders and sync points

Editing

- Real-time non-destructive crossfades
- Advanced crossfade editor with pre & post roll
- Auto-fade and auto-crossfades with user definable fade times for smooth transitions into and out of audio events
- Volume envelope for events
- Sample editor with region list and sync point editing
- Unlimited undo/redo with edit history list
- Timestretch tool allows fast snap-based stretching of material
- Audio Warp real-time algorithm supports real-time time stretching and pitch shifting on individual or all clips
- Time-Warp content tool allows for manual audio warping of individual clips
- Hit point Detection
- Preset curve tools for automation editing
- Various options to lock events in size, fade-length, position and others
- Folder tracks for group-based overview
- Vertical view option for recording takes in the project
- Browser view allows all data (events, automation, etc.) to be edited numerically

- Edit mode for syncing events & fades to the picture
- Sync points available in events and regions, s-points scrub the audio
- Detect & strip silence
- Drag and drop regions from the sample editor to the project window
- Hit point detection for loop editing and cue splitting
- Auto select event under cursor on selected track(s) function
- Zoom presets in the project window and part editor
- Zoom undo/redo
- Automation data can move with the audio events

Processing

- Integrated processes: Acoustic Stamp, Envelope, Fade In/Out, Gain, Merge Clipboard, Noise Gate, Normalize, Phase Reverse, Pitch-shift, Remove DC Offset, Reverse, Silence, Stereo Flip, Time Stretch, Re-sampling
- Process history with the ability to modify, disable/enable or replace previous processes
- Batch processor: Offline Process History can be saved as a batch process
- All VST and DX plug-ins can be processed offline

Video

- Video track with thumbnail preview
- QuickTime™ video player
- DirectX video player (PC only) allowing for multiple tracks and simple video editing operations
- Pull up/down 0.1% video playback speed
- Audio extraction from video files, replace audio in video files
- Full screen Video option
- Support for Pinnacle TARGA 3000 and Cinewave video cards
- Support for Blackmagic DeckLink video cards

Mixing

- Configurable mixer views
- Up to 4 mixers with user defined views available at the same time for perfect overview
- Unlimited amount of channels*
- Unlimited amount of physical inputs & outputs supported**
- Unlimited amount of effect returns, VSTi & group channels*
- VST Connection window: ASIO & master bus routing with preset management
- External FX plug-ins allow integration of external hardware signal processors into the VST mixer as insert or send effects
- Up to 12 speaker channels available for inputs, audio tracks, effects, groups and outputs
- Multiple output configurations for mono, stereo and surround formats at the same time
- Plug-in delay compensation throughout the complete signal path
- Switchable dual mono panner, combined panner or stereo balance on stereo tracks
- Flexible effect or dry recording from any physical input to any audio track
- 8 inserts on inputs channels, audio channels, effect return channels, group channels, VSTi, ReWire and output channels with global and individual soft-bypass
- 8 auxiliary sends per input, audio, VSTi and group channel with up to 12 channels
- Phase invert and gain on all channels
- Solo in Place and AFL/PFL functionality
- Automation tracks for each audio track, group channel and for plug-ins
- Waveform display visible on automation background
- Automation modes Touch, Autolatch and X-Over for all parameters, Automation modes Overwrite and Trim for volume
- Freeze for Audio Channels to reduce CPU load by audio insert Plugins
- Audition channel as separate control room bus

Plug-ins

- Real-time support for VST plug-ins (may also be applied offline)
- Real-time support for DirectX plug-ins (may also be applied offline)
- Support for TC Powercore and UAD-1
- Dummy plug-in replaces missing plug-ins when transferring projects to another system; thereby preserving the original plug-in when

- moving back to the original system
- Included Stereo plug-ins : Flanger, Phaser, Overdrive, Chorus, Symphonic, Reverb A, Reverb B, QuadraFuzz, SPL DeEsser, Double Delay, ModDelay, Dynamics, Magneto, DaTuba, Chopper, Transformer, Metalizer, Rotary, Vocoder, StepFilter, Bitcrusher, Ringmodulator, Grungelizer, MIDI Gate, UV22 HR (Apogee), Multiband Compressor, Test Generator, DeNoiser, DeClicker, Q, Nuendo EQ2
- Included surround plug-ins: MatrixDecoder, MatrixEncoder, Mix8To2, Mix6To2, SurroundPan, MultiScope, MixerDelay, MixConvert, Roomworks Reverb

Surround

- Surround architecture: mixer is fully multi-channel based, in every aspect, up to 12 speaker channels
- MixConvert plug-in for easy up-, down and cross mixing
- Surround encoding: down-mix plug-in for fast monitoring in other multi-channel formats
- Sub-mixer and distance compensation plug-in
- AUX send panners linkable to channel panners
- Matrix Encoder/Decoder for LCRS or 3/2 encoding
- Optional Nuendo Dolby Digital Encoder
- Optional Nuendo DTS Encoder

Network

- Standard network access allows Nuendo to record, play back and copy files from dedicated servers, other workstations or library servers.
- Network collaboration feature set with user chat window for direct communication
- Permission sets of users with individual read/write permissions allow hierarchical sharing of complete projects down to single tracks using TCP/IP
- VST System Link for sample accurate sync, audio and MIDI transport between multiple Nuendo systems

MIDI/Music

- MIDI Device Manager for naming and hiding MIDI devices
- MIDI Device Panels for controlling external MIDI devices directly form within Nuendo
- 64 VST instrument slots
- Key editor
- List editor
- Logical editor
- Drum editor
- Score Editor
- MIDI step recording
- Beat calculator
- MIDI, ReWire and VSTi channels available in the mixer
- Extended Freeze for VSTi instruments offers more options for freezing VSTi's and VSTi channels
- Play Order Track for intuitive arranging and re-arranging of projects
- Tempo processing for fast and accurate tempo operations based on the project's tempo track
- In Place Editor puts the key editor directly on the project page and allows for MIDI event editing (notes and controllers) in context with other tracks and track types
- Relative snapping of objects: parts keep their relative start position when moved by snap values

* Depending on your computer hardware

** Depending on used ASIO hardware

SYSTEM REQUIREMENTS

MACINTOSH

- Required*:
- Power Mac G4 1,33 GHz
 - 512 MB RAM
 - OS X Version 10.3 or higher
 - CoreAudio compatible audio hardware
 - DVD-ROM drive
 - USB port for copy protection key

Recommended:

- Power Mac G5 Dual 2 GHz or faster
- 1024 MB RAM
- Display Resolution 1152 x 864 pixels, dual monitor setup

* Nuendo is proven to run on less powerful computers with less RAM and slower CPUs. These system requirements are meant to provide system specifications which allow for working in a reasonably professional matter.

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Nuendo 3 / 01V96 V2 Setup and Operation

This document describes setup and operation for remote control of Nuendo from the 01V96 digital mixing console. These instructions apply to 01V96 V2.0 or higher and Nuendo V3.0.0 or higher.

Driver Installation

- 1) Connect your PC or Macintosh computer
The 01V96 should be connected to your computer by connecting the TO HOST USB port on the 01V96 to a USB port on your computer.
- 2) Install Driver
Once your computer is connected, you will need to install the USB-MIDI driver included on the 01V96 CD-ROM. It is recommended that you install the latest driver which can be downloaded from www.yamahaproaudio.com

Configuring 01V96 V2

- 1) Press the [DIO/SETUP] display access key and select the MIDI/TO HOST screen.
- 2) Set the DAW port assignment to USB 2-3 (this allows USB port 1 to be used for the 01V96 Studio Manager Editor software). Note: you must use USB ports 2-3 for DAW Control and USB port 1 for Studio Manager if you intend to use these two applications simultaneously.
- 3) Press the [DIO/SETUP] display access key and select the REMOTE page. Then assign NUENDO as the Target for the Remote layer.
(See “About Remote Function” in the 01V96 manual for more information.)
- 4) Press the [REMOTE] LAYER button to select the Nuendo Remote Control Layer. When the Nuendo Remote Control Layer is selected, the 01V96’s control surface controls Nuendo rather than the internal mixing of the 01V96. In order to control the 01V96, you need to select an Input Channel Layer or the Master Layer. Audio mixing on the Input and Master Layers continues while the Nuendo Layer is selected.

Configuring Nuendo V3.0.0 or higher

- 1) Click on the 'Devices' menu and select 'Device Setup'.
- 2) Click on the '+' icon (Add Device), then click on 'Yamaha 01V96v2'. This will cause Yamaha 01V96v2 to appear in the Devices column on the left side of this window.
- 3) In the right side of the 'Device Setup' window, assign 01V96 V2 to the correct MIDI Input and Output ports. For example, if you have chosen USB 2-3 on 01V96, choose 'YAMAHA USB 0-2' in Windows XP/2000 systems (choose 'YAMAHA 01V96 Port2' in Mac OS X). Then select the same port number for MIDI Output. This will cause USB ports 2 and 3 to be assigned for remote control of Nuendo from 01V96.
- 4) The grid below the MIDI port assignment, showing various F key commands can be ignored. The function of USER DEFINED keys on 01V96 V2 are assigned from the mixing console and they cannot be edited in this list. These functions are described later in this document.
- 5) After completing these assignments, click 'Apply' towards the bottom of the Device Setup window. Then click 'OK' to exit this window.

Controlling Nuendo

Input Channel Controls

Faders 1-16 control the levels of Nuendo channels 1-16.
(Refer to the User Defined Keys description below for information about accessing Nuendo channels beyond 1-16.)

The first four characters of the names of the Nuendo channels appear in the LCD of 01V96 when the CHANNEL display is selected by the F3 display key. Also PAN position is displayed here and can be adjusted with the PAN encoder in the SELECTED CHANNEL (remember to select the required channel first).

The 01V96 ON switches control each Nuendo channel's MUTE, and the SOLO and SEL switches also control Nuendo's corresponding functions.

By changing the 01V96's FADER MODE to AUX1-AUX8, NUENDO's SENDS can be controlled and displayed on the LCD (not on the Faders). The level is adjusted with the Parameter Wheel, and the send can be switched ON/OFF by pressing ENTER.

Selected Channel Functions

Pressing the INSERT/DELAY switch in the DISPLAY ACCESS section of 01V96 will cause the VST Audio Channel Settings window to open in Nuendo.

EQ

The four bands of EQ GAIN, FREQUENCY and Q on 01V96 control the same functions on the selected Nuendo channel. To switch an EQ band On or Off, hold down the LOW/LOW-MID/HIGH-MID/HIGH switch for one second.

The entire EQ section can be bypassed by pressing the [EQ] display access key on the 01V96 console.

PAN

The PAN encoder on 01V96 controls the pan functions of Nuendo.

FX Sends, Routing and Insert Editing

Press the F2 key under the LCD to display FX Send, Routing and Plug-in information on the LCD of 01V96.

FX SENDS

Move the Cursor in the 01V96 LCD to the box labelled SEND on the left-side of the display, and click ENTER to show FX Send information. The virtual encoders in the screen can be used to edit various functions, by moving the cursor to them and using the 01V96's large PARAMETER WHEEL:

- Encoder 1 edits the send level.
- Encoder 2 edits the send On/Off status (by turning the PARAMETER wheel).
- Encoder 3 edits between Pre and Post Fader (by turning the PARAMETER wheel).
- Pressing ENTER on any of the 4 encoders will bypass all sends.

There are 8 sends spread over 8 pages. To access different sends, use the LEFT and RIGHT arrow buttons below the LCD.

ROUTING

Move the cursor over the ROUT box in the 01V96's LCD, and press ENTER to access Routing information in the LCD. There are two pages, accessed by pressing the LEFT and RIGHT arrow buttons below the LCD. The following functions can be edited:

Page 1

- Encoder 1 chooses the Output Bus for the selected channel
- Encoder 2 switches the Monitor On/Off (by pressing ENTER or turning the PARAMETER wheel)
- Encoder 3 selects the Input bus

- Encoder 4 shows the Input Gain (this parameter cannot currently be edited by 01V96)

Page 2

Only Encoder 1 has a function. It is used to switch the Input Phase On/Off (by pressing ENTER or turning the PARAMETER wheel).

INSERTS

Move the cursor over the PLUGIN box in the 01V96's LCD, and press ENTER to access INSERT information in the LCD.

- Encoder 1 selects which insert is to be edited
- Encoder 2 switches the insert On/Off (by turning the PARAMETER wheel)
- Encoder 3 selects the type of effect to insert

Once an Effect has been selected, all the parameters can be edited by changing the page viewed on the LCD (by pressing the LEFT and RIGHT arrow buttons below the LCD). The number of pages available depends on the number of parameters used by the Effect.

Note: in any of the above modes, the EFFECT DISPLAY switch toggles between showing the parameter names and the parameter values on the LCD.

Meters & Time Counter

By pressing the F4 key below the LCD of 01V96, the level meters and names for the channels being controlled by the faders are shown.

In the upper part of the LCD, the Time Counter is shown, with an indication of the scale (Time Code, Feet + Frames, Bars + Beats). If Samples is chosen as the scale, then no indication of scale is shown.

Also in the upper part of the display is an indication of whether the Parameter Wheel of 01V96 is being used for SCRUB or for normal parameter adjustment.

Transport, Automation & User Defined Keys

By pressing the 01V96's STEREO Master SEL switch, the Channel SEL keys change their function to control automation Read and Write modes. See DAW AUTO LATCH in the table below for more details.

With 01V96, the USER DEFINED KEYS can be assigned to DAW control functions, such as various transport and automation functions. To edit the USER DEFINED functions, you must first exit from the REMOTE layer. Then press the UTILITY button and access the USER DEF screen.

USER DEFINED BANKS C and D are preset for the following functions:

Bank	Key	Function Name	Nuendo control
C	1	UDEF KEYS BANK D	- (Changes to Bank D)
	2	DAW WIN MIX/EDIT	Opens/Closes the Mixer Window
	3	DAW BANK -	Moves the Fader Bank down by 8 channels, to edit settings of lower numbered channels
	4	DAW BANK +	Moves the Fader Bank up by 8 channels, to edit settings of higher numbered channels
	5	DAW SHUTTLE	Transport Control: Shuttle (in conjunction with turning the PARAMETER wheel)
	6	DAW SCRUB	Transport Control: Scrub (in conjunction with turning the PARAMETER Wheel).
	7	DAW STOP	Transport Control: Stop
	8	DAW PLAY	Transport Control: Play
D	1	UDEF KEYS BANK C	- (Changes to Bank C)
	2	DAW OPTION/ALL	-
	3	DAW AUTO READ	-
	4	DAW AUTO TOUCH	-
	5	DAW AUTO LATCH	Changes the AUTOMIX On/Off mode for the channel SEL keys between READ and WRITE.
	6	DAW AUTO WRITE	Sets all channels to automation WRITE
	7	DAW AUTO TRIM	-
	8	DAW AUTO OFF	-

Other User Defined Key functions

The USER DEFINED keys on 01V96 can be programmed for a variety of other DAW control functions. Not all of the 01V96 DAW functions work with Nuendo, but the table below lists those which do. These functions can only be assigned to USER DEFINED KEYS when the console is not in a REMOTE layer, but they will work whether the REMOTE layer is selected or not:

<i>01V96 Function</i>	<i>Nuendo function</i>
DAW REC	Transport Control: Record
DAW FF	Transport Control: Fast Forward
DAW REW	Transport control: Rewind
DAW IN	Locate to Left Marker
DAW OUT	Locate to Right Marker
DAW RTZ	Locate to Zero
DAW END	Locate to End of Project
DAW ONLINE	Switch SYNC online/offline
DAW LOOP	Transport Control: Loop playback
DAW QUICKPUNCH	Switch Punch In on/off.
DAW AUTO SUSPEND	Sets all channels to automation READ
DAW WIN TRANSPORT	Brings Project Window to the front
DAW WIN MEM-LOC	Show/hide Transport Window
DAW WIN STATUS	Show/hide Performance Window
DAW UNDO	Undo last edit
DAW SAVE	Save Project
DAW Channel -	Moves the Fader Bank down by one channel.
DAW Channel +	Moves the Fader Bank up by one channel.
DAW REC/RDY X	Record Enable for the chosen track number

Nuendo 3 / DM2000 V2 Setup and Operation

This document describes setup and operation for remote control of Nuendo from the DM2000 digital mixing console. These instructions apply to DM2000 V2.0 or higher and Nuendo V3.0.0 or higher.

Driver Installation

- 1) Connect your PC or Macintosh computer
The DM2000 should be connected to your computer by connecting the TO HOST USB port on the DM2000 to a USB port on your computer.
- 2) Install Driver
Once your computer is connected, you will need to install the USB-MIDI driver included on the DM2000 CD-ROM. It is recommended that you install the latest driver which can be downloaded from www.yamahaproaudio.com

Configuring DM2000 V2

- 1) Press the [SETUP] display access key and select the MIDI/TO HOST screen.
- 2) Set the DAW port assignment to USB 2-5 (this allows USB port 1 to be used for the DM2000 Studio Manager Editor software). Note: you must use USB ports 2-5 for DAW Control and USB port 1 for Studio Manager if you intend to use these two applications simultaneously.
- 3) Press the [REMOTE] display access key and assign NUENDO as the Target for one of the Remote layers.
(See “About Remote Layers” in the DM2000 manual for more information.)
- 4) Press the [LOCATOR] display access key and select DAW Control as the function for the transport and locate keys. This allows the Nuendo transport to be controlled regardless of whether a Remote or Internal mixing layer is active.
- 5) Press the relevant [REMOTE] LAYER button to select the Nuendo Remote Control Layer.
When the Nuendo Remote Control Layer is selected, the DM2000’s control surface controls Nuendo rather than the internal mixing of the DM2000. In order to control the DM2000, you need to select an Input Channel Layer or the Master Layer. Audio mixing on the Input and Master Layers, and Automix continues while the Nuendo Layer is selected.

Configuring Nuendo V3.0.0 or higher

- 1) Click on the 'Devices' menu and select 'Device Setup'.
- 2) Click on the '+' icon (Add Device), then click on 'Yamaha DM2000 V2'. This will cause Yamaha DM2000 V2 to appear in the Devices column on the left side of this window.
- 3) In the right side of the 'Device Setup' window, assign DM2000 V2 to the correct MIDI Input and Output ports. For example, if you have chosen USB 2-5 on DM2000, choose 'YAMAHA USB 0-2' in Windows XP/2000 systems (choose 'YAMAHA DM2000 Port2' in Mac OS X). Then select the same port number for MIDI Output. This will cause USB ports 2 through 5 to be assigned for remote control of Nuendo from DM2000.
- 4) In the grid below the MIDI port assignments, the functions of various USER DEFINED keys on the DM2000 can be assigned. Some USER DEFINED keys have permanent assignments so they are not available in this list. These functions are described later in this document.
- 5) After completing these assignments, click 'Apply' towards the bottom of the Device Setup window. Then click 'OK' to exit this window.

Controlling Nuendo**Input Channel Controls**

Faders 1-24 control the levels of Nuendo channels 1-24.
(Refer to the User Defined Keys description below for information about accessing Nuendo channels beyond 1-24.)

The first four characters of the names of the Nuendo channels appear in the Fluorescent channel strip display. Also PAN position is displayed here and can be adjusted with each channel's rotary encoder. For surround panning, pressing the PAN ENCODER MODE switch alternates the function of the encoder between Left-Right and Front-Back panning. When the encoder is functioning in PAN mode, pushing the encoder will activate the MONITOR switch in Nuendo.

The DM2000 ON switches control each Nuendo channel's MUTE, and the SOLO and SEL switches also control Nuendo's corresponding functions. The AUTO switches on DM2000 control Nuendo's Automation Read function.

By changing the DM2000's ENCODER MODE to AUX/MTRX, Nuendo's SENDS can be controlled. Sends 1-8 can be selected with the DM2000's AUX SELECT switches. Then turning the channel rotary encoders will adjust the send level, with the level shown

in the fluorescent display section. In this mode, each send can be switched On/Off by pressing the encoder.

Selected Channel Functions

Pressing any of the DISPLAY switches in the SELECTED CHANNEL section of DM2000 will cause the VST Audio Channel Settings window to open in Nuendo.

COPY & PASTE

The CHANNEL COPY and PASTE switches on DM2000 perform the same functions as COPY and PASTE in Nuendo's Edit menu.

EQ

The four bands of EQ GAIN, FREQUENCY and Q on DM2000 control the same functions on the selected Nuendo channel, and the parameter value is displayed on the console. To switch an EQ band On or Off, hold down the FREQUENCY/Q encoder for one second.

The entire EQ section can be bypassed by pressing the [EQ ON] key in the SELECTED CHANNEL section of DM2000. (Note: when the EQ ON LED is lit in the DM2000, this indicates EQ Bypass in Nuendo.)

PANNING

The PAN encoder and the JOYSTICK on DM2000 control the pan functions of Nuendo. Even if there is no surround panning enabled, the joystick can be used for Left-Right panning.

AUX SENDS

The AUX SEND LEVEL encoders and ON switches edit the 8 sends in Nuendo. So only the first two BANKS on DM2000 are used. By pressing the LEVEL encoders, the send can be switched between Pre and Post Fader.

PHASE AND INSERT

The PHASE switch on DM2000 switches the phase of the selected Nuendo channel, and the INSERT ON switch bypasses all Inserts for the selected channel.

FX Sends, Routing and Insert Editing

FX SENDS

In the EFFECTS / PLUG-INS section of the DM2000, press the INTERNAL EFFECTS key to access FX Send information on the LCD screen. The encoders below the screen can edit various functions:

- Encoder 1 edits the send level.
- Encoder 2 edits the send On/Off status (by turning the encoder).
- Encoder 3 edits between Pre and Post Fader (by turning the encoder).
- Pressing any of the encoders will switch all sends On/Off.

There are 8 sends spread over 8 pages. To access different sends, use the UP and DOWN cursor buttons to the left of the LCD encoders.

ROUTING

Press the PLUG-INS switch to access Routing information in the LCD. There are two pages, accessed by pressing the UP and DOWN cursor buttons to the left of the LCD encoders. The following functions can be edited:

Page 1

- Encoder 1 chooses the Output Bus for the selected channel
- Encoder 2 switches the Monitor On/Off (by pressing or turning the encoder)
- Encoder 3 selects the Input bus
- Encoder 4 edits the Input Gain (the encoder must be pressed down while turning)

Page 2

Only Encoder 1 has a function. It is used to switch the Input Phase On/Off (by pressing or turning the encoder).

INSERTS

When the CHANNEL INSERTS switch is pressed on DM2000, the LCD shows Insert information for the selected channel.

- Encoder 1 selects which insert is to be edited
- Encoder 2 switches the insert On/Off (by turning, not pressing)
- Encoder 3 selects the type of effect to insert

Once an Effect has been selected, all the parameters can be edited by changing the page viewed on the LCD (by pressing the UP and DOWN cursor buttons to the left of the LCD encoders). The number of pages available depends on the number of parameters used by the Effect.

Note: in any of the above modes, the EFFECT DISPLAY switch toggles between showing the parameter names and the parameter values on the LCD.

Transport & Automation

Ensure that DAW CONTROL is selected in the LOCATE MEMORY screen of the LOCATOR display menu on DM2000.

TRANSPORT CONTROLS

The following Transport functions can be controlled from DM2000:

- REC
- PLAY
- STOP
- FF
- REW
- SCRUB
- SHUTTLE
- LOOP
- QUICK PUNCH
- ONLINE

LOCATE FUNCTIONS

The following DM2000 locate functions also control the corresponding Nuendo functions:

- RTZ
- END
- IN
- OUT
- SET
- LOCATE 1-8

To set a locate point (Marker in Nuendo), hold the SET switch on DM2000, and press the required LOCATE MEMORY switch at the required time. Note: DM2000 must be in the appropriate Nuendo Remote Layer in order to set Markers.

TRACK-ARMING

The DM2000 TRACK ARMING 1-24 switches control the RECORD ENABLE switches of the corresponding Nuendo channels.

AUTOMATION

The following AUTOMIX switches on DM2000 control automation functions of Nuendo:

- ENABLE puts all Nuendo channels into READ mode
- REC puts all Nuendo channels into WRITE mode.
- The AUTO switch above each DM2000 channel fader switches READ On/Off for each channel individually. However, when AUTO-REC is switched on, the channel AUTO switches function to control WRITE On/Off in Nuendo.

User Defined Keys

When DM2000 is used to remotely control Nuendo, the following User Defined Keys have permanently assigned functions:

- UDEF 1: Brings the Project window to the front
- UDEF 2: Scrolls channels down in banks of 8
- UDEF 3: Scrolls channels up in banks of 8
- UDEF 9: Open or closes the VST Mixer window
- UDEF 10: Scrolls channels down one channel at a time
- UDEF 11: Scrolls channels up one channel at a time

Other User Defined Keys (UDEF 4-8 and 12-16) can be programmed by the user to control various Nuendo functions. These functions can be selected in the DEVICE SETUP of Nuendo, by selecting “YAMAHA DM2000 V2” and choosing the desired ‘Category’ and ‘Command’ from the drop-down list for each button.

Other Functions

ZOOM & NAVIGATION

The DM2000 CURSOR keys (next to the Scrub Wheel) have two different functions. Their mode can be changed by pressing the INC key above the cursor keys. The mode is shown on the LCD display.

- ZOOM mode: the cursor keys control the vertical and horizontal zoom of the Project Window.
- NAVIGATION mode: the cursor keys control the selection of channels and objects in the Project Window.

TIME COUNTER

The TIME COUNTER is displayed on the DM2000 LCD screen, with the counter mode (TIME CODE / FEET / BEATS). If “Samples” is selected in Nuendo, then no selection is displayed in the DM2000 LCD.

METER BRIDGE

The DM2000 meter bridge displays Nuendo’s input channel levels when the correct REMOTE layer is selected. The TIME CODE counter is also displayed on the Meter Bridge.

Nuendo faq.

<http://www.nuendo.com/phpbb2/faq.php>

Nuendo Video Tour

http://www.steinbergcanada.com/videos_nuendo.htm