MOVIES

ENHANCED MOVIES

INTERNET

GAMES

EDUTAINMENT & REFERENCE

MUSIC

AND BEYOND...

NUON™

INTERACTIVE DVD

DIGITAL VIDEO   ADVANCED AUDIO

3D GRAPHICS

WEB BROWSING   EDUCATION

NUON™ DELIVERS TOTAL VIDEO ENTERTAINMENT

As entertainment technologies quickly converge, media-hungry consumers expect much more from their televisions. DVD players powered by the NUON media processor meet and exceed consumer expectations by delivering a variety of spectacular interactive content while revolutionizing the way consumers interact with their televisions. With NUON, consumers will have access to a variety of media-rich applications including:

- NUON Enhanced DVD Movies
- Interactive Audio
- 3-D Video Games
- Multi-player Network Games
- Edutainment & Education
- Reference Multimedia
- Internet Web Browsing & Email
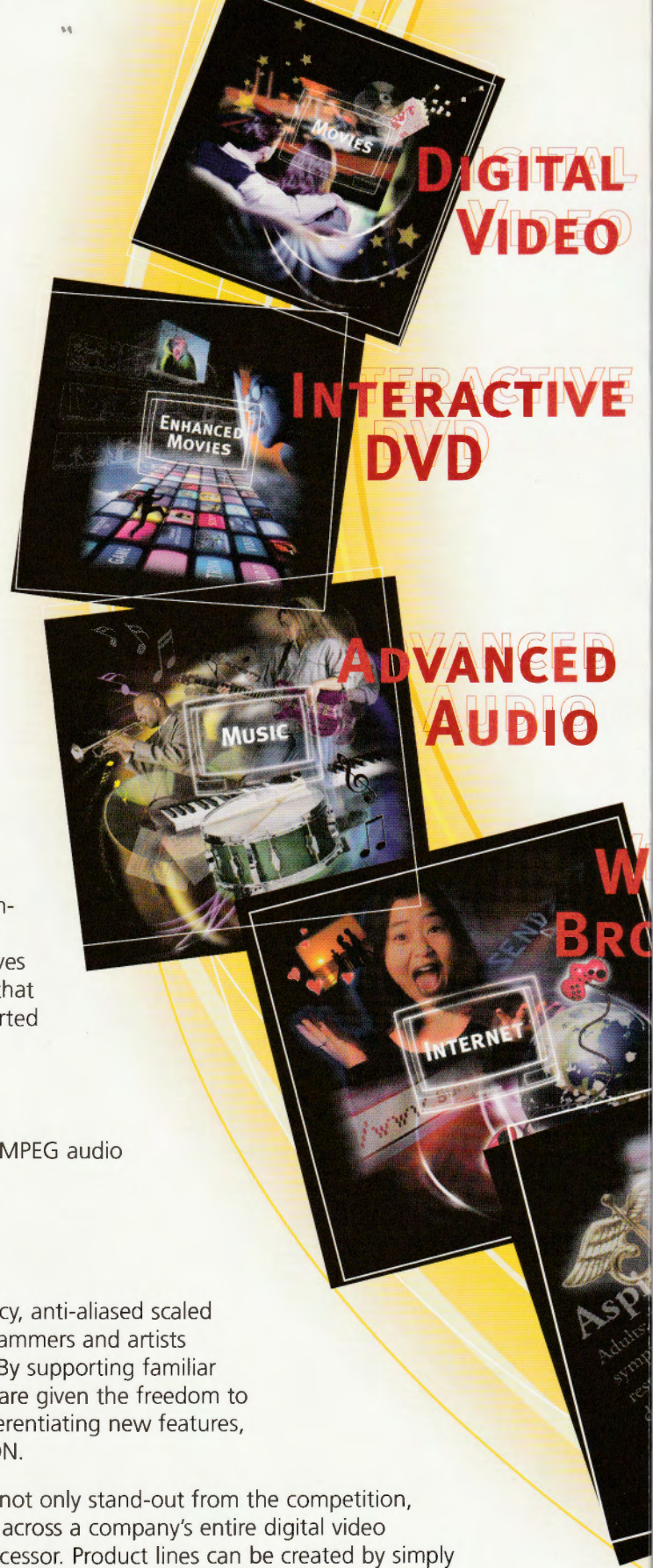
UNPARALLELED SUPPORT FOR INDUSTRY STANDARDS

New entertainment technologies are being introduced at a startling rate. Frantically trying to keep pace with emerging standards, DVD manufacturers using hard-wired silicon solutions must wait as their IC vendors scramble to spin new silicon. The implications of these delays are drastic. Since NUON is a software programmable media processor, these delays are virtually eliminated. While the competition waits helplessly for new silicon to arrive, NUON gives programmers the opportunity to quickly create the software code that will deliver the new standards ahead of schedule. Standards supported by NUON include:

- DVD-Video, VideoCD, CD-DA
- MPEG-1 and MPEG-2, NTSC, PAL, Sub-picture video
- Dolby™ AC-3, Dolby ProLogic™, DTS™, LPCM, Spatializer™, MPEG audio
- CD-DA, HDCD™, CD-TEXT, DVD Audio, MP-3, S/PDIF
- HTML, JAVAScript™, JPEG, GIF, Macromedia Flash™

CREATIVITY WITHOUT CONSTRAINTS

With access to 16 million colors, 256 levels of transparency, anti-aliased scaled fonts and multiple 2D and 3D rendering engines, programmers and artists are free to design a completely custom environment. By supporting familiar languages such as C/C++ and HTML, programmers are given the freedom to develop specialized Graphical User Interfaces, differentiating new features, and cutting-edge software applications for NUON.

With this kind of flexibility, NUON products not only stand-out from the competition, but allow OEMs to differentiate products across a company's entire digital video product line using the same media processor. Product lines can be created by simply incorporating different software, yielding varying degrees of features. As a product matures, it is possible to upgrade existing hardware by issuing a software change or upgrade.

DIGITAL VIDEO

INTERACTIVE DVD

ADVANCED AUDIO

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NUON™ IS MORE THAN A MEDIA PROCESSOR

NUON defines the standard for interactive content in the living room. Representing a significant advancement in DVD, NUON delivers enhanced interactive DVD movies, video-enabled interactive audio, high-performance video games and Internet connectivity. Motion picture studio endorsement is impelled by the desire to offer extra assets and interactivity to consumers, without having to negotiate the pitfalls of the PC world. Video game, edutainment, and new-media developers and publishers recognize NUON as the prodigy interactive family platform for the living room.

Through strategic retail positioning of NUON enhanced hardware, software and peripherals, the association of NUON with the highest quality video entertainment experience cultivates consumer confidence and brand recognition. Awareness of NUON brand reputation is conveyed to any product promoting the name; from NUON enhanced DVD players to NUON enhanced digital set-tops.

NUON™ DVD FEATURES

- Smooth Shuttle, Slow and Fast Forward, Rewind, Zoom, Pan and Scan
- Picture in Graphics, Video Scaling, Graphics Overlay
- Wide screen, Letterbox, Multi-Angle, Closed Caption
- 16 Million Color User Interface / On-screen Display
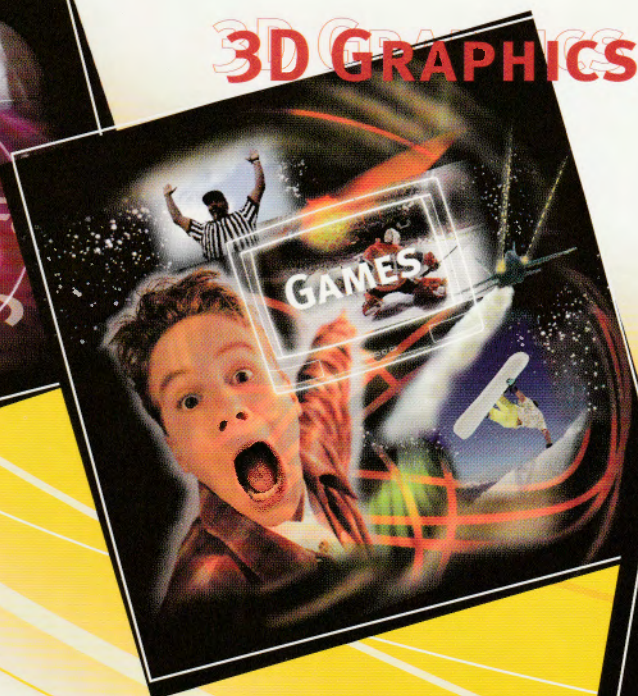- 256 Levels of Transparency with Alpha Blending
- Advanced DVD Karaoke

NUON™ AFTER-MARKET APPLICATIONS AND PERIPHERALS

- NUON Enhanced DVD Movies
- NUON Video Games
- CD Audio Interactive Video Light Show
- Game Controllers, Keyboards, Modems, Printers
- Multi-player Network Game Support

TECHNICAL SPECS

N U O N™

NUON™ MEDIA PROCESSOR SPECIFICATIONS:

- Over 1,500 MIPS
- 216 Million 32-Bit Multiply-Accumulate Operations per Second
- 864 Million 16-Bit Multiply-Accumulate Operations per Second
- 13.5 Million (4x4) x (4x1) Matrix Transformations per Second (32-Bit Elements)

FIRMWARE AND LIBRARY SPECIFICATIONS:

Digital Video
- MPEG-2 MP@ML Audio/Video Decode
- Video Scaling, Zoom, Picture in Graphics
- DVD Subpicture
- Graphics Overlays
- PAL/NTSC

Digital Audio
- Dolby™ AC-3, MPEG-1, MPEG-2, LPCM, PCM
- 3D Spatializer™, ProLogic™
- CD-DA, HDCD™, CD-TEXT
- DVD Audio, MP3, DTS™
- SPDIF Output
- ADPCM and PCM Sample Playback
- 32-Voice General MIDI Wavetable Synthesizer Full MIDI Sample Set
- Advanced Karaoke: Reverb, Chorus, Echo, Flange, Key Control, Vocal Partnering, Harmony

2-D Graphics
MML2D - Full Featured 2D Graphics Library
- 2-D Drawing Functions (Line, Rectangle, Ellipse, Arc, Polygon, Bit-blit)
- Support for Various Line Styles, Widths, Gradient Blends, Anti-Aliasing
- Real Time Scaled and Compressed Fonts, TrueType™ Outline Fonts
- 16 Million Colors, Alpha Blending With 256 Levels of Transparency

3-D Graphics
MGL 3D Graphics Library
- Patterned After Computer Graphics Industry Standard OpenGL™
- Bilinear Filtering, Perspective Correct Texture Mapping
- Automatic Mip-Mapping, Lighting

M3DL 2D/3D Graphics Library
- Console-Style Library Familiar to Console Game Programmers
- 2D Sprites & Tiles, Bilinear Filtering 3D Graphics
- Perspective Correct Texture Mapping, Mip-Mapping

Caviar™Voxel Graphics Library
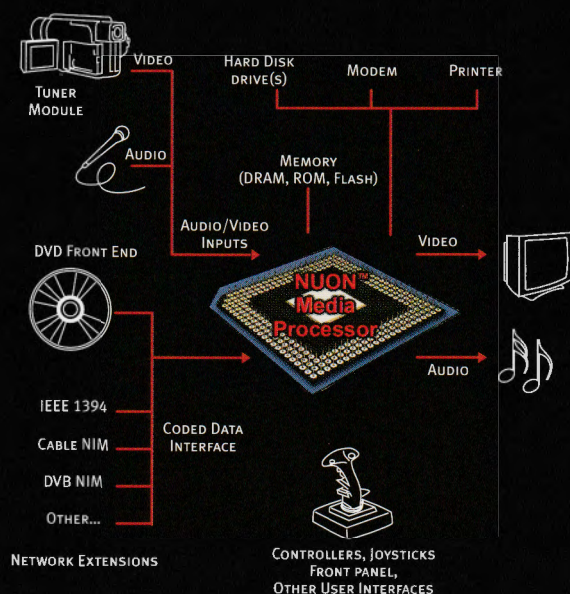- Non-Polygonal 3D Library

Audio Libraries
Wavetable Synthesizer
- Full Featured General MIDI Compatible
- Automatic MIDI File Parsing
- Voice Editor Allows Creation of Application-Specific Wavetable Banks
- Low-Level API Access

PCM Engine
- Plays Digital Audio Samples
- Choice of Sample Rates
- Supports ADPCM Formats, Digital Audio Streaming

NUON™ MEDIA ARCHITECTURE

VIDEO
TUNER MODULE
AUDIO
DVD FRONT END
AUDIO/VIDEO INPUTS
HARD DISK DRIVE(S)   MODEM   PRINTER
MEMORY (DRAM, ROM, FLASH)
NUON™ Media Processor
VIDEO
AUDIO
IEEE 1394
CABLE NIM
DVB NIM
OTHER...
CODED DATA INTERFACE
NETWORK EXTENSIONS
CONTROLLERS, JOYSTICKS FRONT PANEL, OTHER USER INTERFACES

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