

## A DEFINING MOMENT IN HOME ENTERTAINMENT

EXPERIENCE THE TRUE POWER OF YOUR HIGH DEFINITION TELEVISION<sup>1</sup>: AN EXCITING NEW WORLD OF ENTERTAINMENT, DESIGNED TO MEET THE NEEDS OF YOUR HOME ENTERTAINMENT SYSTEM TODAY AND YOUR HOME NETWORKING SOLUTION IN THE FUTURE.

THE GROWTH OF HIGH DEFINITION TV HAS CREATED NEW EXPECTATIONS FOR GREATER REALISM AND IMAGE QUALITY AMONG DISCERNING CONSUMERS. THESE SAME CONSUMERS WANT THEIR HIGH DEFINITION CONTENT TO BE READILY AVAILABLE ON THEIR SCHEDULE, AND IN A FORMAT THEY CAN EASILY EMBRACE. HD DVD IS READY TO MEET THE NEEDS OF THOSE CUSTOMERS AS IT LEADS THE INDUSTRY INTO AN EXCITING NEW WORLD OF HOME ENTERTAINMENT. AS THE NEXT GENERATION DVD STANDARD ADOPTED BY THE DVD FORUM, HD DVD DELIVERS OUTSTANDING RESOLUTION, BRIGHT, VIVID COLORS, STUNNING SOUND THAT WILL BRING THE EXCITEMENT AND PLEASURE OF THE CINEMA EXPERIENCE INTO YOUR HOME. AND AS HOME NETWORKING TECHNOLOGY EVOLVES, HD DVD IS POISED TO MEET THE FUTURE DIGITAL HOME SYSTEMS AND OUR INCREASED EXPECTATIONS FOR ENHANCED INTERACTIVITY.

### SOMETHING OLD...SOMETHING NEW... SOMETHING BLUE

The base disc structure of HD DVD is the same as standard DVD, but that is where the similarities end. HD DVD combines the latest advances in video compression with new laser technologies to provide High Definition content on a disc. High Definition video requires a tremendous amount of space, thus a new blue laser (versus a red laser for DVD) is utilized for HD DVD. The blue laser, with its shorter wave length, allows for information to be stored more densely on the disc, thus improving storage capacity by about 3 times compared to that of a red laser technology.

Additionally, more accurate and efficient video compression like MPEG-4 AVC and VC-1 (based on Microsoft's Windows Media) compress information to achieve file sizes that are less than half of those of the current DVD's MPEG2.

### HD THAT RIVALS HDTV

HD DVD not only provides a deliverable HD media format to the home, but does so with the potential of greater performance than you have experienced with HDTV. The HD-XA1 disc drive has an astounding 36.55Mbps transfer rate. To put that in perspective, standard DVD has an average bit rate of less than 10Mbps and HDTV's maximum rate is 24Mbps. In a "nutshell", the more bits that can be allocated to video, the more detailed the resulting picture can be.

### PURE DIGITAL CONNECTION

The HD-XA1 connects to your HDTV with the latest advancement in Audio/Video equipment interfaces, namely the High Definition Multimedia Interface (HDMI™). HDMI is the first industry-supported all digital Audio/Video connection providing the transmission of uncompressed digital video and multi-channel audio on a single cable. The HD-XA1 will output HD content through the HDMI interface in the native format of the HD DVD disc content of either 720p or 1080i.

### STANDARD DVDS TAKEN TO AN HD LEVEL

Since the HD-XA1 is backwards compatible, you can play your entire collection of DVDs on the player<sup>2</sup>. The HD-XA1 takes this a step further by taking advantage of the HDMI™ interface and scaling the standard definition DVD's video to an output resolution of 720p or 1080i to match your HDTV's performance. Not only is the output of the video in HDTV standard resolutions, but because the conversion takes place in the player, the signal remains free from excessive digital-to-analog conversion artifacts.

### HEAR WHAT YOU ARE SEEING

HD Video offers a variety of complimentary HD Audio options for disc makers. The mandatory audio formats for HD DVD include both lossy and lossless formats from Dolby® Labs and DTS®. The mandatory lossy formats are comprised of legacy formats from DVD such as Dolby Digital and DTS, as well as newly developed Dolby Digital Plus aimed at bringing improved fidelity and more channels of information to the HD DVD format. With bit rates over four times that of standard DVD, Dolby Digital Plus brings increased sonic realism to the soundtracks.

The lossless mandatory formats include Linear PCM and Dolby TrueHD (only 2 Channel support is mandatory). The TrueHD format is bit-for-bit identical to the high resolution studio masters, and can support up to eight discrete full range channels of 24-bit/96k Hz audio. Another lossless format, specified as an optional format, is DTS-HD. This too is bit-for-bit identical to the original soundtrack, but employs high sampling rates of 192k Hz.

### PROCESSING PROWESS

The HD-XA1 has built-in multi-channel decoders for Dolby® Digital, Dolby Digital Plus, Dolby TrueHD (2 ch.) and DTS, but they are far from ordinary. The HD-XA1 employs the use of four high performance DSP engines to decode the multi-channel streams of the wide array of audio formats. These 32-bit floating-point DSPs are world renown for their high accuracy and are employed in many high-quality audio solutions in the home theater market. This high performance processor handles many of the required conversion processes, as well as the extensive on-board Multi-Channel Signal Management for the HD-XA1 including: User Selectable Crossovers, Delay Management and Channel Level Management. After decoding and signal management, the digital audio is converted to analog by way of 24 bit/192kHz audio DAC and output as 5.1 analog audio.



### DIGITAL AUDIO OUTPUT OPTIONS

The HD-XA1 can pass digital information to a surround sound processor/receiver with either S/PDIF or HDMI™. For Dolby® Digital and DTS® soundtracks, the bitstream will be passed through both connections just as in a standard DVD player with the same interfaces. Dolby Digital Plus and DTS-HD soundtracks will be converted to a standard bitstream (i.e. Dolby Digital) output through S/PDIF or HDMI.

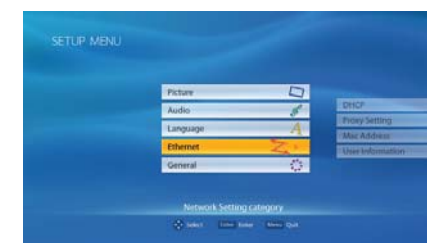
Additionally all the HD-XA1's supported audio formats can be decoded to PCM and output via HDMI in either stereo or 5.1 multi-channel, depending on the original soundtrack.

## REFINEMENT THAT REFLECTS HIGH PERFORMANCE

The HD-XA1 was built not only to offer great advancements in Audio, Video and Interactivity, but also the refinements one expects out of a high performance player.

### HD USER INTERFACE GRAPHICS

High definition video deserves a high definition user interface. That is why the HD-XA1 uses a high performance processor to create stunning graphics. With three user selectable choices, you can customize the look and feel of your HD DVD player to suit your mood.



### A TOUGH THAT ILLUMINATES

The remote control of the HD-XA1 is built to high quality standards with superior materials such as aluminum and high gloss acrylic, as well as backlit keys for operation in a darkened environment. Simply pick up the remote control and the motion-activated sensor automatically illuminates the remote control, without having to search for the "light" button in the dark. After use, set it down and the remote turns itself off.



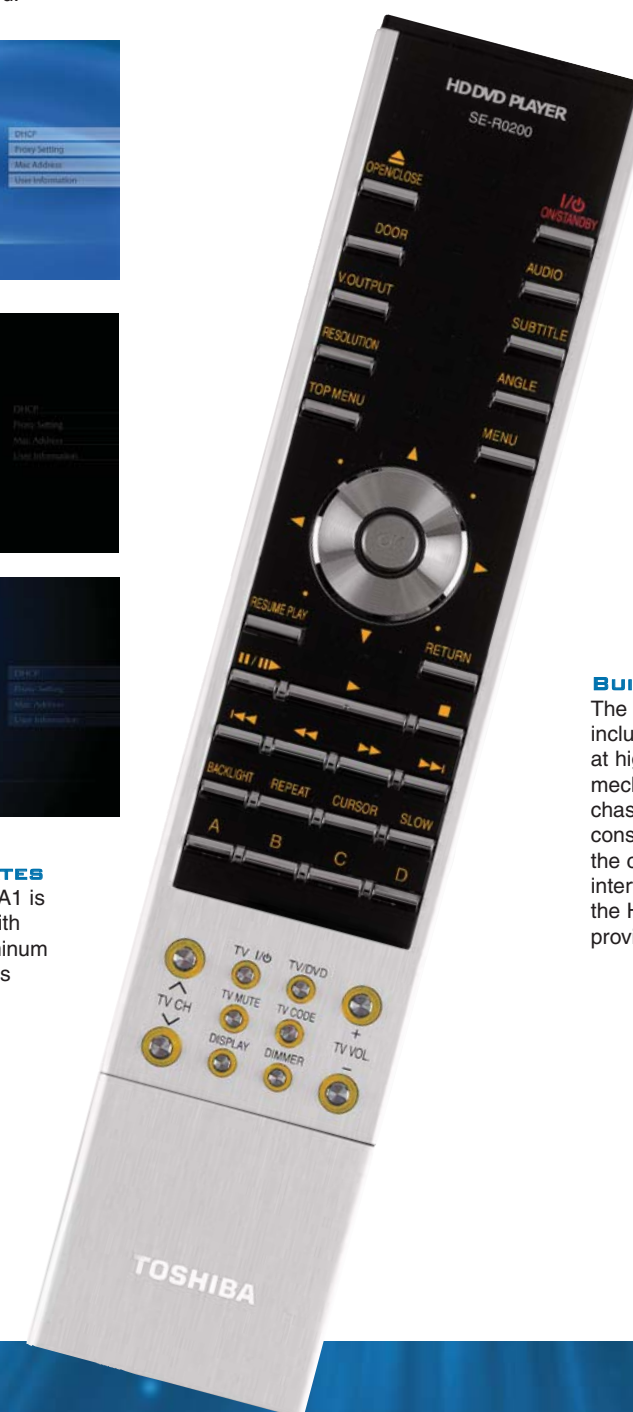
### OPEN SESAME

The HD-XA1 features a mechanical door that opens with the press of a button. The all extruded aluminum construction not only will impress your friends as it opens and closes at your command, but also conceals the disc drawer, buttons and front USB ports. With these elements hidden away, the HD-XA1 presents itself with clean and refined look.

### BUILT NOT JUST FOR BEAUTY

The HD-XA1 is a thing of beauty, but the precise design includes more than its exterior. The HD DVD disc spins at higher revolutions than a standard DVD, thus accurate mechanical engineering went into the design of the chassis for a very stable platform. A double chassis construction is employed to add strength and rigidity to the chassis to ward against unwanted vibrations that could interfere with the reading of the disc. To further stabilize the HD-XA1, large insulated stabilizing feet are used, providing a rock solid foundation for the device.

**HDMI**™  
HIGH DEFINITION MULTIMEDIA INTERFACE



## HD DVD – AN EXCITING NEW WORLD OF ENTERTAINMENT

OFFICIALLY RECOGNIZED BY THE DVD FORUM AS THE NEXT HIGH-CAPACITY DVD DISC, HD DVD HAS BEEN DESIGNED TO MEET HOLLYWOOD'S HIGH EXPECTATIONS FOR SUPERIOR IMAGE QUALITY AND EXTENDED RECORDING TIMES WHILE DELIVERING THE ABILITY TO CREATE INNOVATIVE NEW PRODUCTS WITH OUTSTANDING VALUE.

### ADVANCED NAVIGATION<sup>4</sup>

HD DVD has the capability to offer unique interactive features that are intended to deliver a superior entertainment experience. From a single disc, many new levels of interactivity are possible. Some possibilities include:



**ENHANCED MENU** – While watching the movie, you can search the menu and make changes to set-up options or access other functions.



**FAST SEARCH** – Without stopping the movie, display the scene or chapter list and jump directly to the scene you want to watch.



**COMMENTARIES** – During the movie, listen to the director's ideas or the thoughts of the actors as they happen in the movie.



**INTERNET CONNECTIVITY** – By utilizing the Ethernet port on your HD DVD player, you will have the potential to easily download a variety of additional content. Purchase the soundtrack or related merchandise you just saw in the movie. The potential is there<sup>3</sup>.



**GAMES** – Play an exciting range of new games, specially created to make the most of HD DVD interactivity.

### TWIN FORMAT DISC

Twin format discs mean convenience. Since the disc structure of HD DVD and DVD discs are similar, a double-sided twin format disc can also be easily produced<sup>2</sup>. If they choose to, studios have the capability to put a HD DVD movie on one side and a standard DVD movie on the other. In other words, watch a movie in High Definition on your HD DVD player in your home entertainment center or take the movie with you and watch the standard definition version with your portable DVD player while on your vacation.



HD-XA1



### VIDEO

Disc Playback: HD DVD, HD DVD-R, DVD, DVD-R/-RW/-RAM, CD, CD-R/-RW  
 HD Content Output via HDMI (Disc Native Resolution)  
 11-bit / 216MHz Video DAC  
 Video Up-Conversion for SD DVD (720p/1080i)  
 Enhanced Black Level (0IRE / 7.5IRE Selection)  
 Letterbox / Pan & Scan Support



### AUDIO

Built-in Dolby<sup>®</sup> Digital, Dolby Digital Plus, DTS<sup>®</sup> and DTS-HD Decoders  
 Dolby Pure HD Compatible (2 Channel)  
 Four 32-bit Floating Point Digital Signal Processors  
 Multi-Channel 24-bit/192kHz Audio DACs  
 HDMI Audio support up to 5.1 L-PCM  
 5.1 Channel Bass Management  
 Speaker Size  
 Speaker Distance  
 User Selectable Crossover (80Hz, 100Hz, 120Hz)  
 Channel Level Adjustment  
 Dynamic Range Control  
 MP3 and WMA Playback

### CONVENIENCE

Motion Activated Backlight Remote Control  
 Tri-Lingual OSD (English, French/Japanese)  
 Bit Rate Display  
 FL Dimmer  
 Fast Forward  
 Fast Reverse  
 Slow Play  
 Step Play  
 Time Search  
 A-B Repeat  
 Screen Saver  
 Parental Lock



### CONNECTIONS

Front Panel:  
 2 USB Terminals

Rear Panel:

1 High Definition Multimedia Interface (ver. 1.1)  
 1 ColorStream Pro<sup>®</sup> Component Video (gold plated)  
 1 S-Video (gold plated)  
 1 Composite Video (gold plated)

1 Stereo Analog Audio (gold plated)  
 5.1 Multi-Channel Analog Audio (gold plated)  
 1 Coaxial Digital Output (gold plated)  
 1 TosLink<sup>®</sup> Optical Digital Output  
 1 Ethernet 10/100 Port  
 1 RS-232C

**DIMENSIONS** (W x H x D): 17.72" x 4.33" x 13.39"

Because HD DVD is a new format that makes use of new technologies, certain disc, digital connection and other compatibility issues are possible. If you experience compatibility problems, please contact Customer Service.

**TOSHIBA**

Image is Everything.™

Dolby is a registered trademark of Dolby Laboratories. DTS is a registered trademark of Digital Theater Systems. DVD and HD DVD are trademarks of DVD Format/Logo Licensing Corporation. HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks of HDMI Licensing L.L.C. Windows is a registered trademark of Microsoft, Inc.

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<sup>1</sup>HD DVD with high definition content required. Viewing some high definition content may require an HDMI or HDCP capable DVI input on your display device.

<sup>2</sup>Some DVD discs may not be compatible. If you experience compatibility problems, please contact customer service.

<sup>3</sup>Customer-supplied internet connection required. Some features may require higher bandwidth connection.

<sup>4</sup>Advanced Navigation features are not covered by the HD DVD specification, but are made possible by HD DVD features.

**TOSHIBA**

**HD DVD**

A DEFINING MOMENT . . .

HD-XA1

