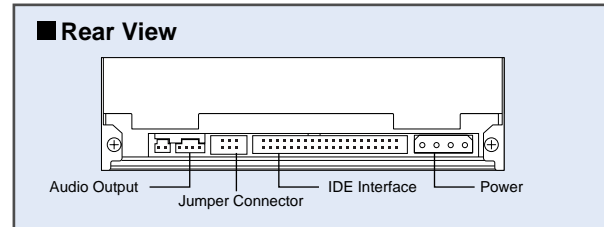


Panasonic



Model Number	LF-D321U
Capacity	4.7 GB / 9.4 GB DVD-RAM (rewritable) 2.6 GB / 5.2 GB DVD-RAM (rewritable) 4.7 GB DVD-R General Use (write-once)
Data Transfer Rate (IF Interface)	Ultra DMA Mode 2 : max. 33.3 MB / s PIO Mode 4 : max. 16.6 MB / s
Write Data Transfer Rate	4.7 GB DVD-RAM : 1,385 KB (with verifying) 2.6 GB DVD-RAM : 690 KB (with verifying) 4.7 GB DVD-R : 1,385 KB (without verifying)
Read Transfer Rate	DVD-RAM (4.7 GB) : 2,770 Kbps (2 X) DVD-RAM (2.6 GB) : 1,385 Kbps (1 X) DVD-ROM : 3,438 Kbps - 8,310 Kbps (Max X 6) DVD-ROM / CD-R : 1,520 Kbps - 3,600 Kbps (Max X 24) CD-RW : 1,800 Kbps (12 X)
Average Seek Time	DVD-RAM : 75 ms DVD-ROM / DVD-R, CD-ROM : 65 ms
Write Compatibility	4.7 GB DVD-RAM 2.6 GB DVD-RAM 4.7 GB DVD-R (for General Ver.2.0)
Read Compatibility	CD-DA ¹ , CD-ROM / XA, Photo CD, Video CD, CD-Extra, CD-R ² 3, CD-RW ² 3, DVD-ROM, DVD-R ² 4, DVD-Video ⁵ , DVD-RAM (4.7 GB, 2.6 GB)
Buffer Capacity	1 MB
Power Supply	12 V / 5 V ± 5 %
Dimensions (W X H X D)	146 X 41.3 X 196 mm 5.75" X 1.63" X 7.72"
Weight	1.1 kg (2.4 lbs.)

¹ CD-G not supported.
² Playback of DVD-R, CD-R and CD-RW may not be fully performed depending on the writing conditions of discs.
³ Supports Multi Read for CD-R and CD-RW.
⁴ Supports discs with a capacity of 3.95GB that are written with the disk-at-once option.



■ Disc Specifications

DVD-R (for General Ver.2.0)

Model Number	LM-RF47
Recording Capacity	4.7 GB
Scanning Velocity	3.49 m / s
Track Pitch	0.74 μm
Minimum Pit length	0.4 μm
Laser Wave length	645 - 665 nm (typical)
Outer Diameter	120 mm
Inner Diameter	15 mm
Thickness	1.2 mm
Reflectivity	More than 45 %
Write Power	8 - 12 mW
Bottom jitter	Less than 7.5 %
Modulation	More than 60 %
Pi error	Less than 100

■ Disc Specifications

DVD-RAM

Model Number	LM-HA94	LM-HB94	LM-HB47	LM-HC47	LM-DA52	LM-DB26
Capacity [Unformatted]	9.4 GB (Double-sided)	9.4 GB (Double-sided)	4.7 GB (Single-sided)	4.7 GB (Single-sided)	5.2GB (Double-sided)	2.6 GB (Single-sided)
Scanning Velocity	8.16 - 8.49 m / s				5.96 - 6.35 m / s	
Track Pitch	0.615 μm				0.74 μm	
Minimum Pit length	0.420 - 0.437 μm				0.614 - 0.653 μm	
Byte / Sector	2,048 Byte / Sector				2,048 Byte / Sector	
Sector / Track	25 - 59 (ZCLV)				17 - 40 (ZCLV)	
Outer Diameter	120 mm					
Inner Diameter	15 mm					
Thickness	1.2 mm					
Cartridge Type	TYPE 1 (Non-removable)	TYPE 4 (Removable)	TYPE 2 (Removable)	Non-cartridge	TYPE 1 (Non-removable)	TYPE 2 (Removable)

LF-D321U Includes a Complete Suite of Software

DVDIt!™ LE 2.3

Allows you to create DVD videos that includes menus.

- Write directly to DVD-R or DVD-RAM discs.
- Drag & Drop MPEG 2 files from DVD-MovieAlbum and MotionDV STUDIO.
- Build interactivity, format content automatically.



DVD-MovieAlbum SE

Allows you to record and edit on DVD-RAM in Video Recording format.

- Record up to 4 hours (compressed) of MPEG 2 images in the video recording format on a single DVD-RAM disc.
- Simple Play using thumbnail images.
- Find a program using play lists and indexes.
- Simple editing using the keyboard, mouse, and X128 shuttle search feature.



MotionDV STUDIO 3.0 LE

Allows editing of video on digital video equipment connected to the computer.

- Simple capturing of images from a DV camera.
- Animation and a variety of effects.
- Simple to make titles and credits, just like a real movie.



WinDVD 3.0

WinDVD is DVD player software that not only decodes the high quality images on DVD-Video and plays high quality audio, but also lets you play Video CDs and Audio CDs.

- Provides enhanced DVD Playback.
- Includes alpha blending for sharper subtitles.
- Features brightness and tone adjustments.



FileSafe

Easy-to-use backup software allows you to protect important data.

- Simplify transfer of data from your hard disk to DVD-RAM.
- Access backed up files on DVD-RAM, using Explorer and your application software.



MediaSafe

Make copies of large-capacity DVD-RAM discs using minimal hard disk capacity.

- Use a single DVD-RAM drive to copy from one DVD-RAM disc to another.
- Safely duplicates DVD-RAM discs.



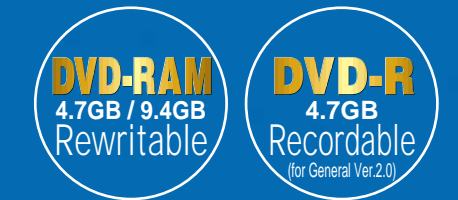
	FileSafe	MediaSafe	DVD-MovieAlbum SE	DVDIt!™ LE2.3	Win DVD 3.0	MotionDV STUDIO 3.0LE
Windows® Me	●	●	●	●	●	●
Windows® 98	●	●	● (SE)	●	●	● (SE)
Windows® 2000	●	●	●	●	●	—

Panasonic



4.7GB DVD-RAM/R Drive LF-D321U

Internal ATAPI



100% DVD Forum Approved

DVDBurner

DVD-RAM/R DRIVE



Take your data and AV storage into the future with
Panasonic DVDBurner
 DVD-RAM/R DRIVE
 Media flexibility, compatibility ...and more.

Write	Read
9.4/4.7 GB 5.2/2.6 GB DVD-RAM Discs	DVD-ROM DVD-R DVD-Video CD-ROM CD-R / RW CD-Audio
4.7 GB DVD-R Disc (for General Ver.2.0)	



Panasonic DVD-RAM & DVD-R - The Universal Storage Solution for Data & AV



Rewritable

DVD-RAM

for high reliability and random access editing



- Drag & Drop storage-just like a hard disk
- Cost-effective, reusable 4.7GB discs
- Cartridge option to protect valuable data
- No additional software needed for data storage

DVD-RAM offers more than 100,000 write/rewrite cycles with built-in error correction

The random access capabilities and the rewritability of DVD-RAM make it an excellent storage device for backup and fast recovery database storage or any application that requires editing.

Write-Once

DVD-R

for broad compatibility, security



- Burns 2.4 hours of MPEG 2 video onto DVD-R
- 4.7GB Write-Once Capacity for Archiving
- 100 years Life Expectancy
- Requires burning software for DVD-ROM

Example of DVD-Video recording time

Recording bit rate	Video rate	Audio rate*1	Recording time
about 10Mbps	about 8.3Mbps	about 1.7Mbps	about 1hour
about 5Mbps	about 3.3Mbps	about 1.7Mbps	about 2hours

*1 : DVDit! LE uses 48KHz Linear PCM audio and it always uses about 1.7Mbps for Audio rate.

DVD-RAM/R ...for Convenience, Flexibility, Compatibility

The Panasonic DVD-RAM/R drive has broad appeal among consumers, businesses and professionals who want the ideal DVD solution for applications ranging from home movie authoring and editing to PC and enterprise data storage and photo/image archiving.

Removable Gigabyte storage capacity

- The 4.7GB storage capacity allows you to store:
- 4,000 full-color digital pictures
 - 4 hours (compressed) of MPEG2 video (2.4Mbps equivalent)
 - 400,000 documents (10KB/each file)
 - Store the equivalent of 7 CDs



CD-R/RW
650MB x7



The massive 9.4GB storage meets multimedia audio/video/computing requirements.



DVD-RAM 4.7GB
DVD-R 4.7GB

The Optimum DVD Storage Solution for Multimedia Applications!!



Write/Read
DVD Video Recorder



DVDBurner
DVD-RAM/R DRIVE
for Data&AV



under Read
DVD-ROM Drive



Read
DVD Player

In addition to reading from and writing to both DVD-RAM and DVD-R discs, the versatile drive provides all of the functionality of the DVD Forum specifications for DVD-RAM and DVD-R General, including maximum compatibility with DVD-Video players, recorders and DVD-ROM drives.

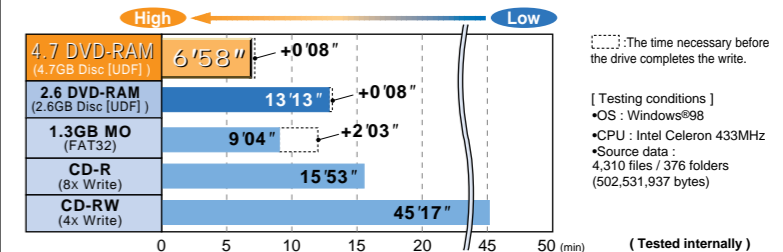
DVDBurner is the ideal solution for both data and AV applications

A V		P C	
for Authoring	Consumer recording	Video recording editing	Enterprise data Back up & archiving
	DVD-RW		
	DVD-RAM		
	DVD-R		
DVD-RAM/R Drive			

The combination DVD-RAM/R drive is designed to move content easily from AV to the computer, to TV and the Web.

Proven performance

■ Copy speed of 500MB data (HDD to DVD-RAM)



With the improved seek-time & cache algorithm, high-speed X2 read/write on the 4.7GB/9.4GB DVD-RAM discs becomes possible.

Exceptionally Broad Media Compatibility

The Panasonic LF-D321U reads/writes 9.4GB double-sided / 4.7GB single-sided / 5.2GB double-sided / 2.6GB single-sided DVD-RAM discs. Burns DVD-Video onto DVD-R(for General Ver.2.0) discs. The drive also reads existing DVD formats (DVD-ROM,DVD-R, DVD-Video) and CD media allowing you to take your data into the future.

Write/Read

- 4.7GB DVD-R Disc
- 9.4GB DVD-RAM Disc
- 4.7GB DVD-RAM Disc
- 5.2GB DVD-RAM Disc
- 2.6GB DVD-RAM Disc

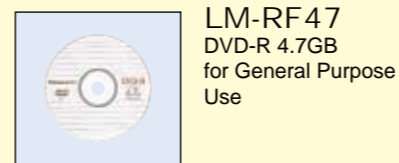


Read

- DVD-ROM
- DVD-Video
- DVD-R
- CD-ROM
- CD-R/RW
- CD-DA
- CD-EXTRA
- Video CD
- Photo CD

You choose the media, DVD-RAM/R Drive does the work.

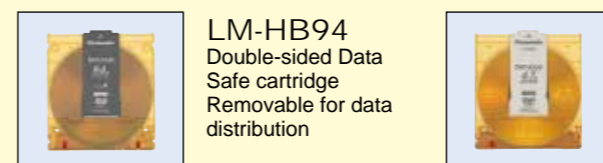
DVD R 4.7 Write-Once DVD-R for DVD-Video & Archiving



LM-RF47
DVD-R 4.7GB
for General Purpose Use

- 50 discs : LM-HS94B50 (9.4GB DVD-RAM)
- 50 discs : LM-HS47B50 (4.7GB DVD-RAM)
- 50 discs : LM-RS47B50 (4.7GB DVD-R for General)
- 25 discs : LM-HS47V25 (4.7GB DVD-RAM)
- 25 discs : LM-RS47V25 (4.7GB DVD-R for General)

DVD RAM 4.7 Rewritable DVD-RAM for highly reliable data, audio & video storage



LM-HB94
Double-sided Data Safe cartridge
Removable for data distribution

LM-HA94
Double-sided Data Safe cartridge
Non-removable for extra security



LM-HB47
Data Safe cartridge
Removable for data distribution

LM-HC47
Non-cartridge media
For low-cost data distribution

For data-intensive users who need to share data with other DVD devices.



Ultra-Reliability to protect your data

Mission-critical applications requires extra reliability. DVD-RAM includes sophisticated verification and error correction to protect your important data. Also, TYPE 1 & TYPE 2 DVD-RAM discs provide the added protection the cartridge.

Note: DVD-RAM provides advanced disc management, error correction and data verification features for professional and data critical applications. DVD-R is a consumer-oriented write-once format, compatible with most DVD players and DVD-ROM drives.