

# HP StorageWorks Ultra Density Optical Jukebox family



Optical 7100ux Jukebox

HP StorageWorks Optical Jukeboxes are designed for long-term, permanent, archival storage of electronic records or data, and provide easy compliance for today's various regulatory requirements. In addition, HP StorageWorks Optical Jukeboxes combined with 30 GB per disk Ultra Density Optical (UDO) technology, provide a cost-effective means for achieving compliance. HP StorageWorks Optical Jukeboxes now provide storage capacities from 30 GB in a standalone desktop product, and 700 GB to 7.1 TB in jukeboxes, making it the ideal cost-effective storage solution for small, medium and enterprise business customers. This increase in capacity has brought the cost per gigabyte down by more than 75% when compared with Magneto-Optical (MO)! Additionally, the ability to have a mixed-drive solution in both mid-range and high-end allows customers with legacy MO media to still read their old media yet take advantage of the new, higher capacity UDO drives and



Optical 700ux/1100ux Jukebox



Optical 1000ux, 1900ux,  
2300ux Jukebox

media. HP UDO media is based on ultra density, blue laser technology and stores up to three times the data at 84% less than the cost of MO media.

## High-end 30 GB Optical Jukeboxes

The HP StorageWorks Optical 3800ux and 7100ux Jukeboxes provide enterprise-level, cost-effective, removable storage of 3.8 TB to 7.1 TB in either Write Once Read Many (WORM) or rewritable format. Along with standard Low Voltage Differential SCSI (LVDS) interface, these products can provide fibre connectivity when combined with the HP StorageWorks Network Storage Router N1200 or M2402. Products start at a 4-drive, 128-slot unit (3800ux) and can be upgraded with HP kits to a maximum configuration of 10 drives and 238 slots (7100ux) with various drive and slot configuration in between. There is also the ability to have a mixed drive jukebox for customers with legacy Magneto-Optical



# Now with storage capacities from 30 GB in a standalone desktop product and 700 GB to 7.1 TB in jukeboxes, HP is able to provide a capacity point to meet most customers' needs.

environments. This jukebox is a 10-drive (4 MO, 6 UDO), 238-slot jukebox. Mixed drive and fibre support are dependent on the support of the ISV software.

## Mid-range 30 GB Optical Jukeboxes

The HP StorageWorks Optical 1000ux, 1900ux and 2300ux Jukeboxes provide medium-sized businesses to enterprise-level customers with cost-effective, removable storage of 1.0 TB to 2.3 TB in either WORM or rewritable format. Along with standard LVDS interface, these products can provide fibre connectivity when combined with the HP StorageWorks Network Storage Router N1200 or M2402. Customers can purchase the entry-level 1000ux and upgrade with HP kits to the 1900ux. The 1900ux has the ability to have a mixed drive configuration (2 MO and 2 UDO drives) for customers with legacy Magneto-Optical environments. The Optical 2300ux Jukebox is a specific point product in the mid-range for those needing higher storage capacities in a mid-sized jukebox. Mixed drive and fibre support are dependent on the support of the ISV software.

## Entry-level 30 GB Optical Jukeboxes

The HP StorageWorks Optical 700ux and 1100ux Jukeboxes provide small- to medium-sized businesses with cost-effective, removable storage of 700 GB to 1.1 TB in either WORM or rewritable format. Along with standard LVDS interface, these products can provide fibre connectivity when combined with the HP StorageWorks Network Storage Router N1200 or M2402. Customers can purchase the entry-level 700ux with one drive and upgrade with HP kits to the two-drive version or the 1100ux. Both the 700ux and the 1100ux are rack-mountable with the purchase of the rack kit from HP. These products provide reliable long-term archival storage in 7U (12.25 inches).

## 30 GB Optical Standalone

The HP StorageWorks Optical 30ux standalone product is ideal for long-term, permanent storage on the desktop or in a distributed environment. It provides 30 GB of removable, WORM or rewritable storage. The 30ux ships with drivers for Microsoft® Windows® (2000, 2003 and XP). The 30ux is perfect for those working in computer-aided design offering easy, secure desktop

storage. These devices are also appropriate for remote point of sales (POS) capture devices to provide a permanent log of transactions that can later be sent off-site.

## Key features and benefits

- *Enhanced space efficiency:* New, rack-mountable entry-level jukebox provides up to 1.1 TB of storage in 12.25 inches of rack space
- *Increased capacity:* Provides more than three times the storage capacity of the previous Magneto-Optical technology in the same footprint
- *Lowered cost:* Leverages from the previous generation jukeboxes while increasing the capacity allowing the cost per gigabyte to decrease by as much as 75%; combines high capacity with low media cost for an exceptionally low cost of ownership
- *Added flexibility:* Provides the ability to have a mixed drive (Magneto-Optical and Ultra Density Optical) jukebox in the mid-range and high-end and the flexibility to read MO media while taking advantage of the new higher capacity UDO media and drives
- *Improved connectivity:* Offers LVDS interface and the ability to connect to fibre via a fibre-to-SCSI router solution
- *Improved WORM functionality:* Improves WORM functionality by using phase change writing for write-once processes; allowing easier compliance with laws and regulations regarding tamper-proof electronic files
- *Reliable:* Provides HP-designed robotics for worry-free operation
- *Fast:* Features read and write speeds increased by up to 33%
- *Well-connected:* Features compatibility with leading operating systems, software and servers
- *Future-proof:* Delivers a compelling technology roadmap, doubling capacity each generation
- *Standards:* Delivers the competitive benefits of a standard format based on UDO technology

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<b>Standalone/drive capacity and performance</b>	<b>300x</b>
<b>Disk capacity</b>	30 GB
<b>Sustained transfer rate read</b>	8 MB/s
<b>Sustained transfer rate write</b>	4 MB/s
<b>Burst transfer rate synchronous</b>	40 MB/s Low Voltage Differential SCSI mode 20 MB/s SE mode
<b>Burst transfer rate asynchronous</b>	40 MB/s
<b>Average seek</b>	25 ms
<b>Rotational speed</b>	2010 rpm WORM, 1950 rpm Rewritable
<b>Load (w/spin up)</b>	7 s typical
<b>Unload (w/spin down)</b>	5 s typical
<b>Mean Time Between Failures (MTBF)</b>	100,000 hours
<b>Mean Swap Between Failures (MSBF) horizontal orientation</b>	750,000 swaps
<b>Read/write error rate</b>	<1 per 1020 bytes read
<b>Interface type</b>	Low Voltage Differential (LVD) SCSI – 68 pin
<b>Buffer size</b>	32 MB

<b>Jukeboxes capacity and performance</b>	<b>700x</b>	<b>1100x</b>	<b>1000x</b>	<b>1900x</b>	<b>2300x</b>	<b>3800x</b>	<b>7100x</b>
<b>Capacity</b>	720 GB	1140 GB	960 GB	1920 GB	2280 GB	3840 GB	7140 GB
<b>Slots</b>	24	38	32	64	76	128	238
<b>Drive count</b>	1 or 2	2	2	4	2	4 or 6	4, 6 or 10
<b>Pickers</b>	Single	Single	Dual	Dual	Dual	Dual	Dual
<b>Average disk exchange time</b>	16 seconds	16 seconds	6.5 seconds	6.5 seconds	6.5 seconds	6.5 seconds	6.5 seconds
<b>SCSI connectivity Low Voltage Differential (LVD) – High Density Thumb Screw (HDTS)</b>	68 pin LVD (HDTS)	68 pin LVD (HDTS)	68 pin LVD (HDTS)	68 pin LVD (HDTS)	68 pin LVD (HDTS)	68 pin LVD (HDTS)	68 pin LVD (HDTS)
<b>Fibre channel router support</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Preventive maintenance</b>	None required	None required	None required	None required	None required	None required	None required
<b>MTBF</b>	80,000 hours	80,000 hours	100,000 hours	100,000 hours	100,000 hours	100,000 hours	100,000 hours
<b>MSBF</b>	≥1,000,000 swaps	≥1,000,000 swaps	≥2,000,000 swaps	≥2,000,000 swaps	≥2,000,000 swaps	≥2,000,000 swaps	≥2,000,000 swaps
<b>Mean Time To Repair (MTTR)</b>	30 minutes	30 minutes	30 minutes	30 minutes	30 minutes	30 minutes	30 minutes

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### Environmental specifications

**Temperature range** Operating: 30ux 15°C to 35°C; all other products 10°C to 35°C  
Storage: -40°C to 60°C

**Humidity range** Operating: 10% to 80% RH (non-condensing)  
Storage: 5% to 90% RH (non-condensing)

**Front panel** Jukebox and drive status, Move media, Load/Unload, Diagnostics

**Safety** IEC 60950, UL 60950, CSA 60950; EMC CISPR 22/class A, CISPR 24  
For country specific compliance contact your local sales representative

Power specifications	30ux	700/1100ux	1000/1900/2300ux	3800/7100ux
<b>Line voltage</b>	100 to 240 VAC	100 to 240 VAC	100 to 240 VAC	100 to 240 VAC
<b>Line frequency</b>	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz
<b>Energy-saving mode</b>	n/a	Power savings when robotics are inactive	Power savings when robotics are inactive	Power savings when robotics are inactive
<b>Power consumption</b>	30 W typical 50 W maximum	38/55 W typical 70 W maximum	210/240 W typical 250/275 W maximum	340 W typical 560 W maximum
<b>Regulatory model number</b>	N3620N1Z	LVDC-0451	N3620N3Z	N3620N4Z
<b>Dimensions (H x W x D) inches/cm</b>	3.9 x 6.5 x 11.0/ 10.0 x 16.5 x 28.0	10.2 x 17.5 x 31.3/ 26.0 x 44.5 x 79.5	36.0 x 33.9 x 19.0/ 91.4 x 86.3 x 48.2	71.1 x 34.5 x 29.2/ 180.7 x 87.6 x 74.2
<b>Weight</b>	8.2 lbs (3.7 kg)	66.1 lbs (30 kg)	220 lbs (100 kg)	490 lbs (222.7 kg)

### Ordering information

Product number	Product name	Description
AA961A	30ux, 30 GB desktop UDO drive	Standalone only
AA962A	700ux, 24-slot, 1-drive UDO jukebox	Standalone or rack mount with AD505A, can be upgraded to AA963A or AA964A
AA963A	700ux, 24-slot, 2-drive UDO jukebox	Standalone or rack mount with AD505A, can be upgraded to AA964A
AA964A	1100ux, 38-slot, 2-drive UDO jukebox	Standalone or rack mount with AD505A
AA965A	1000ux, 32-slot, 2-drive UDO jukebox	Standalone only, can be upgraded to AA966A
AA966A	1900ux, 64-slot, 4-drive UDO jukebox	Standalone only
AA967A	2300ux, 76-slot, 2-drive UDO jukebox	Standalone only, point product, cannot be upgraded to or built in the field
AA968A	1900ux, 64-slot, 4-drive, mixed drive jukebox	Standalone only, mixed drive, 2 MO drives, 2 UDO drives
AA969A	3800ux, 128-slot, 4-drive UDO jukebox	Standalone only, can be upgraded with more drives or more slots
AA970A	3800ux, 128-slot, 6-drive UDO jukebox	Standalone only, can be upgraded to 7100ux with more slots
AA971A	7100ux, 238-slot, 6-drive UDO jukebox	Standalone only, can be upgraded to 10-drive unit
AA972A	7100ux, 238-slot, 10-drive UDO jukebox	Standalone only
AA973A	7100ux, 238-slot, 4-drive UDO jukebox	Standalone can be upgraded to 6 or 10 drives
AA974A	7100ux, 238-slot, 10-drive, mixed drive jukebox	Standalone only, mixed drive, 4 MO drives, 6 UDO drives
AA991A	1200mx/660ex MO to UDO Conversion Kit	Materials and 4 UDO drives to convert from previous generation MO high-end products

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Product number	Product name	Description
AA992A	2200mx/1200ex MO to UDO Conversion or 3800ux Capacity Upgrade Kit	Convert older 238-slot jukeboxes to UDO in combination with AA991A or capacity upgrade for 3800ux
AA993A	3800ux/7100ux Drive Upgrade Kit	One pair of UDO drives to increase drive capacity in the 3800ux or 7100ux jukeboxes
AA994A	300mx/160ex MO to UDO Conversion Kit	Materials and 2 UDO drives to convert from previous generation MO mid-range products
AA995A	600mx Mixed Drive Conversion Kit	Materials to convert 64-slot MO jukebox to UDO in conjunction with AA994A
AA996A	1000ux Drive/Capacity Upgrade Kit	Includes 2 UDO drives to make a 2-drive, 32-slot UDO jukebox into a 4-drive, provides the capacity increase to go from 32 to 64 slots
AA998A	700ux Drive Upgrade Kit	Includes 1 UDO drive and mounting hardware
AD500A	700ux Capacity Upgrade Kit	Includes ID module to increase capacity to 38 slots
AD505A	700ux/1100ux Rack Mount Kit	Rack mount shelf and hardware
<b>Media</b>		
Q2030A	HP UDO 30 GB Write Once disk	30 GB of capacity, write once
Q2031A	HP UDO 30 GB Rewritable disk	30 GB of capacity, rewritable
<b>What's included: 30ux</b>	Standalone drive unit; documentation CD including user guide; safety warnings; driver CD-ROM (Windows 2000, XP and Server 2003); welcome mat; 1 piece 30 GB rewritable media; SCSI terminator; 1 U.S. power cord	
<b>What's included: 700/1100/1000/1900ux 2300/3800/7100ux</b>	Optical Jukebox unit; documentation CD including user guide; safety warnings; welcome mat; 1 piece 30 GB rewritable media; SCSI terminator; 1 U.S. power cord	
<b>Warranty and support</b>	<p>30ux standalone: HP provides a 1-year, next-day, manufacturing exchange, limited warranty (Warranty Code 4H), plus 9x5 phone support for the duration of the warranty. In order to provide ease of installation, maximize uptime and ROI, HP provides a range of upgradeable service options with both Fixed and Flexible Care Packs.</p> <p>Optical Jukeboxes: HP provides a 1-year, next-day, 13x5 on-site, limited warranty (Warranty Code 4G), plus 9x5 phone support for the duration of the warranty. In order to provide ease of installation, maximize uptime and ROI, HP provides a range of upgradeable service options with both Fixed and Flexible Care Packs.</p>	
<b>30ux Fixed Care Packs</b>	U4823A/E U6372A/E H4438A/E U2852A/E U6373A/E U9430A/E U9431A/E U9432A/E U9433A/E	Installation HW, 3-year, NBD, 13x5, on-site* HW, 3-year, 4-hour, 13x5, on-site HW, 3-year, 4-hour, 24x7, on-site HW, 3-year, 6-hour CTR, 24x7, on-site** HW, 4-year, 4-hour, 13x5, on-site HW, 4-year, 4-hour, 24x7, on-site HW, 5-year, 4-hour, 13x5, on-site HW, 5-year, 4-hour, 24x7, on-site
<b>700ux and 1100ux Fixed Care Packs</b>	U4823A/E U6374A/E H4437A/E U2853A/E U6375A/E U9434A/E U9435A/E U9436A/E U9437A/E U2731PE U3503PE	Installation HW, 3-year, NBD, 13x5, on-site* HW, 3-year, 4-hour, 13x5, on-site HW, 3-year, 4-hour, 24x7, on-site HW, 3-year, 6-hour CTR, 24x7, on-site** HW, 4-year, 4-hour, 13x5, on-site HW, 4-year, 4-hour, 24x7, on-site HW, 5-year, 4-hour, 13x5, on-site HW, 5-year, 4-hour, 24x7, on-site HW, 1-year, 4-hour, 13x5, on-site, post warranty* HW, 1-year, 4-hour, 24x7, on-site, post warranty*
<b>1000ux, 1900ux and 2300ux Fixed Care Packs</b>	U4823A/E U6376A/E H5532A/E U2854A/E U6377A/E U9438A/E U9439A/E U9440A/E U9441A/E U3507PE U3504PE	Installation HW, 3-year, NBD, 13x5, on-site* HW, 3-year, 4-hour, 13x5, on-site HW, 3-year, 4-hour, 24x7, on-site HW, 3-year, 6-hour CTR, 24x7, on-site** HW, 4-year, 4-hour, 13x5, on-site HW, 4-year, 4-hour, 24x7, on-site HW, 5-year, 4-hour, 13x5, on-site HW, 5-year, 4-hour, 24x7, on-site HW, 1-year, 4-hour, 13x5, on-site, post warranty* HW, 1-year, 4-hour, 24x7, on-site, post warranty*

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## 3800ux Fixed Care Packs

U4823A/E	Installation
U6378A/E	HW, 3-year, NBD, 13x5, on-site*
H5533A/E	HW, 3-year, 4-hour, 13x5, on-site
H4435A/E	HW, 3-year, 4-hour, 24x7, on-site
U6379A/E	HW, 3-year, 6-hour CTR, 24x7, on-site**
U9442A/E	HW, 4-year, 4-hour, 13x5, on-site
U9443A/E	HW, 4-year, 4-hour, 24x7, on-site
U9444A/E	HW, 5-year, 4-hour, 13x5, on-site
U9445A/E	HW, 5-year, 4-hour, 24x7, on-site
H2732PA/PE	HW, 1-year, 4-hour, 13x5, on-site, post warranty*
U3505PE	HW, 1-year, 4-hour, 24x7, on-site, post warranty*

## 7100ux Fixed Care Packs

U4823A/E	Installation
U6380A/E	HW, 3-year, NBD, 13x5, on-site*
H5534A/E	HW, 3-year, 4-hour, 13x5, on-site
H4436A/E	HW, 3-year, 4-hour, 24x7, on-site
U6381A/E	HW, 3-year, 6-hour CTR, 24x7, on-site**
U9446A/E	HW, 4-year, 4-hour, 13x5, on-site
U9447A/E	HW, 4-year, 4-hour, 24x7, on-site
U9448A/E	HW, 5-year, 4-hour, 13x5, on-site
U9449A/E	HW, 5-year, 4-hour, 24x7, on-site
H2733PA/PE	HW, 1-year, 4-hour, 13x5, on-site, post warranty*
U3506PE	HW, 1-year, 4-hour, 24x7, on-site, post warranty*

## All "ux" Jukebox Flexible Care Packs

HA113A1	Installation
HA103A1	HW, 1-year, 4-hour, 13x5, on-site
HA104A1	HW, 1-year, 4-hour, 24x7, on-site
HA105A1	HW, 1-year, 6-hour CTR, 24x7, on-site**
HA109A1	HW, 1-year, Support Plus, 13x5, on-site
HA110A1	HW, 1-year, Support Plus 24, on-site
HA111A1	HW, 1-year, Proactive 24, on-site
HA112A1	HW, 1-year, Critical Service, on-site
HA101A3	HW, 3-year, next-day, 13x5, on-site
HA103A3	HW, 3-year, 4-hour, 13x5, on-site
HA104A3	HW, 3-year, 4-hour, 24x7, on-site
HA105A3	HW, 3-year, 6-hour CTR, 24x7, on-site**
HA109A3	HW, 3-year, Support Plus, 13x5, on-site
HA110A3	HW, 3-year, Support Plus 24, on-site
HA111A3	HW, 3-year, Proactive 24, on-site
HA112A3	HW, 3-year, Critical Service, on-site

\* 'A' signifies a physical Care Pack, 'E' signifies an electronic Care Pack  
\*\* Not available in North or Latin America

## Service options

HP recommends that customers take advantage of the Installation service when incorporating this product into their system. This service will ensure that the product is installed properly, and is usable, in the minimum possible time. In order to maximize ROI and product uptime, and minimize the cost of ownership, HP recommends the 3-year, 24x7 service options. These offerings will ensure that any product issue can be tackled when they occur (most issues will occur outside standard business hours) and that the service coverage regarding period, covers the minimum expected life of the host system. For more information on HP storage services, please visit: [www.hp.com/hps/storage/](http://www.hp.com/hps/storage/)

## Financial services

HP Financial Services provides innovative financing and financial asset management programs to help you cost-effectively acquire, manage and ultimately retire your HP solutions. For more information on these services, please contact your HP sales representative, or visit: [www.hp.com/go/hpfinancialservices](http://www.hp.com/go/hpfinancialservices)

## For more information

For more information on HP StorageWorks Ultra Density Optical Jukebox products, contact any of our worldwide sales offices, or visit: [www.hp.com/go/udo](http://www.hp.com/go/udo)  
For more information on HP StorageWorks Magneto-Optical Jukeboxes, please visit: [www.hp.com/go/optical](http://www.hp.com/go/optical)

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