

When will UDO be available?

The first generation 30GB UDO drives will be shipping to Plasmon partners (system integrators, ISVs and OEMs) in Q3 of 2003. General availability for end-users and others will follow in Q4 of 2003.

What is the price for the UDO drive?

Plasmon has not yet formalized list pricing for the UDO drive mechanism. We expect the 30GB UDO drive to be in line with today's Magneto Optical drives (\$2500 - \$3500 USD for the 14x Sony drive depending on configuration)

What is the price for UDO media?

Plasmon has stated that list price for 30GB UDO-R (WORM) media will be \$60 USD (yielding \$2.00 per GB). Official list pricing for the 30GB UDO-RW (rewritable) media has not yet been fixed but users can expect the price to come in at approximately 1.5x the UDO-R price.

What is the roadmap for UDO?

Plasmon has publicly committed to a three generation roadmap for UDO starting at 30GB, continuing to 60GB, and growing eventually to 120GB, with each new product being released every 2 to 3 years.

Who will be supporting the UDO drive?

UDO is receiving solid support from ISVs, OEMs and media manufacturers. Plasmon's ISV program for UDO will include all current Plasmon and MO ISVs. The program will kick off in Q3 with a series of Webinars, training programs, and UDO drive and library deliveries. Plasmon is driving for full ISV support for UDO drives and libraries at GA in Q4.

Does Plasmon have any OEMs for UDO?

IBM is publicly committed to UDO and to Plasmon automation for its i-Series customers. Plasmon also has formal, if not yet public, support from other OEMs. Hewlett Packard, for instance, continues to work very closely with Plasmon, and has incorporated UDO products on the optical automation roadmap they are currently sharing with their customers. With IBM, HP and Plasmon, UDO has the support of all the major MO automation marketshare leaders. DISC and several other smaller automation providers have stated that they intend to incorporate UDO drives in their automation products as well.

Will there be a second source for UDO drives or media?

In developing UDO, Plasmon has worked closely with several key development partners to attain necessary technology components for both drives and media. Plasmon has been approached by several of these partners about becoming second source vendors and the company plans to select at least one of them in each category.

Will Plasmon be selling UDO in a stand-alone package?

Plasmon will be selling stand-alone UDO drives in both internal and external configurations. Plasmon will also be supplying UDO drives in a "raw" version for OEMs, and for integration partners through commercial distribution.

What Operating Systems will support UDO?

Plasmon intends to have UDO supported by all major operating systems. Operating system technical support will be provided by Plasmon and/or operating system vendors. Application-specific technical support for both drives and libraries will be provided through major ISVs and their integration and support programs.



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Is UDO a BluRay drive? Can UDO read BluRay media?

UDO is not a BluRay technology. BluRay and other consumer-oriented technologies are aimed at next generation DVD products with single disk capacities supporting three-hour HDTV recording. These technologies will appear in a variety of consumer products targeted for installation in home entertainment environments. UDO uses blue laser, but differs from BluRay in packaging, format and media. The use of blue lasers enables UDO to benefit from the high-volume production of these components. Different enclosures, format and media, on the other hand, better suit UDO for professional archiving applications. BluRay and UDO media cannot be interchanged.

What is the difference between "Professional" and "Consumer" products in the optical space?

The differences between Professional and Consumer optical products are driven by divergent market requirements. The most important are system and drive robustness, data reliability and product stability. Consumer drives are typically accessed several times a day at most, and are incorporated in very low-cost consumer devices. Professional drives have to meet access and robustness requirements several orders of magnitude higher. UDO drives, for instance, are designed for high MTBF and high load cycles - 750,000 loads versus approximately 25,000 for existing consumer drives. Consumer media, because a skipped beat in a music clip or a missing pixel in a video segment is not critical, is made as inexpensively as possible. Professional media has to have guaranteed data integrity - down to the last bit. That is why Plasmon designed UDO media to last at least half a century. Consumer products typically have very short life cycles. Backward compatibility and stability are not priorities, and consumer media and drives often see small "incremental" product or specification improvements in 3-6 month time frames. Professional drives and media reflect customer requirements for high peripheral ROI and lack of disruption to operations, and therefore tend to have "generational" product improvements. The UDO roadmap therefore, has well-planned, significant, backward-compatible capacity and performance jumps every couple of years.

How is UDO positioned compared to V-Disk?

V-Disk is based on Sony's BluRay technology developed specifically for the HD-TV market. Sony has packaged it in a slightly more robust drive mechanism with a media cartridge enclosure, but BluRay is inherently questionable as a professional optical technology. (See above and below.) Furthermore, V-Disk drives and media conform to a new form factor (compared with ISO standard 5.25 inch UDO and MO form factors). This means the technology will be very difficult to incorporate in existing automation products, limiting both customer and OEM acceptance.

Beyond the objective technical issues, one can question Sony's long-term commitment to the professional optical storage market and its motivation in promoting V-disk at this time.

How is UDO positioned compared to BluRay?

BluRay is a consumer application of blue laser technology aimed at next-generation High-Definition home video. The capacity points, performance, and media formats are all focused on meeting the needs of the HDTV market. The differences between professional and consumer media technologies described above, like those between MO and DVD products today, all apply when comparing BluRay and UDO. In addition, BluRay is being driven by an industry consortium heavily influenced by the unique requirements of the entertainment industry. Issues like copy protection, and other TV-related concerns are slowing development and potentially adding to BluRay's unsuitability as a professional storage technology.

How is UDO positioned compared to DVD?

DVD's current capacity of 9.4GB will be the maximum this technology attains. UDO's starting capacity is 30GB. Other major differences have to do with the "consumer vs. professional" issues outlined earlier. Also, DVD media is a loose disk technology (not a cartridge-based media like UDO and MO), creating data handling and integrity issues. DVD media is inherently more susceptible to dust and damage than cartridge-based media.

How is UDO positioned compared to EMC's Centera and other disk-based near-line solutions?

Fueled by the rapidly decreasing prices of hard disk drives, EMC and their competitors are increasingly positioning near-line storage as a replacement for tape and optical storage systems. While these products may be appropriate for certain "reference" data applications previously served by tape, near-line disk storage compares poorly to UDO optical storage in archiving applications for three reasons:

- 1) UDO's write once media is inherently unalterable. The blue laser literally burns the media, and the process cannot be reversed. (UDO is also available in a rewritable format.) Near-line storage solutions, as well as tape solutions for that matter, rely on software to prevent re-writing.
- 2) UDO's data integrity is unsurpassed. EMC, implicitly recognizing the inherent unreliability of disk drive-based systems, recommends "backing up" data and metadata from one Centera to another.
- 3) UDO's TCO is quite low. Disk drive systems, especially those from EMC, have high upkeep and maintenance costs. They have to be kept running continuously. UDO cartridges, on the other hand, can be recorded and then put on a shelf for half a century, without a penny of additional cost required.

What Plasmon libraries will support UDO?

Plasmon's G-Series products will all support UDO. The M-Series will not support UDO (new build or upgrades).

Can an existing library support UDO?

Plasmon will offer an upgrade program for all existing G-Series products. The program will be field installable and will take less than one day to accomplish. The process will require a trained service technician. The M-Series is not upgradable to UDO (field or factory).

When will the Upgrade Program be available?

Plasmon has already announced the Upgrade Program and will have it in place at GA in Q4 2003.

What will an upgrade cost?

Plasmon has not yet published upgrade pricing. Pricing will include the on-site upgrade technician visit.

What will be included in the Upgrade Program?

The G-Series Upgrades will include robotic and electrical interface modifications, as well as new UDO drives for mixed media support. Mixed media support will allow the customer to mix 14x and UDO drives and media in the same library. This feature will eliminate the need for costly data translation from MO to UDO media.