



AccessNode Bulletin

Special OPC Conversion Program

CTDI is pleased to proceed with the OPC Conversion Program that will allow customers to continue replacing mechanical OPCs (NT7E24BC) with solid state OPCs (NT7E24FB) at special prices. This Bulletin extends the availability of this program and provides details on how customers can capitalize on this limited time offer.

What is an OPC?

The Operations Controller (OPC) is a computing platform contained on a plug-in module for use in AccessNode systems. Two basic types of OPCs are available – the mechanical OPC, which contains a magnetic hard drive and DAT tape drive, and a Solid State OPC which eliminates the mechanical moving parts of an OPC by replacing the magnetic hard drive with non-volatile, semiconductor flash storage, and by replacing the tape drive with a PCMCIA card reader. As described in Appendix A, the solid state OPCs can offer significant benefits and operating cost savings over the life of the AccessNode product, including:

- Increased Reliability & Robustness
- Backup Data Integrity
- Reduced Maintenance Costs

The OPC Conversion Program

All hard disks and tape drives use mechanical parts (e.g. bearings, drive lubricants, etc.) which wear out with time (typically within 5-to-8 years). As such, the dominant failure mode for mechanical OPCs is related to the hard disk / DAT drives. Since many of the AccessNode customers have had such OPCs in-service for many years now, these units may be approaching the end of their useful lifespan, and may be subject to mechanical failures.

To help customers address such failure concerns pro-actively, CTDI is pleased to continue the OPC Conversion Program that allows customers to migrate existing mechanical OPCs to solid state versions, and extend the useful life of these units, while enjoying the ongoing benefits and costs savings that the Solid State OPC offers (see Appendix A for additional information on the ongoing benefits of the Solid State OPC).



Ordering Information

Customers wishing to have one or more mechanical OPCs (NT7E24BC) converted to an equivalent Solid State OPCs (NT7E24FB) should use the order codes listed in Table #1 and refer to Table #3 for relevant contacts information.

Note that unique order codes are used for each AccessNode software release already loaded on the mechanical OPC sent for conversion. The same software load will be pre-loaded on the solid state OPC that will be returned to the customer. Please specify a Qty of one (1) for each OPC to be converted.

It is also possible to have a mechanical OPC converted to a solid state OPC even if it does not previously contain any AccessNode software loads (e.g. a 'blank' OPC can be converted). OPCs that do not have an AccessNode software load pre-installed will be converted to solid state and pre-loaded with an OPC / UNIX Boot load installed (see first order code in Table #1). OPCs with a UNIX boot load can later be loaded with any desired software load in the field (see Table # 2 for a list of AccessNode Software loads on PCMCIA cartridges).

TABLE #1: OPC Conversion Program – Order Codes			
Order Code	Description	Base Unit Price	Volume Unit Price
SVC-OPC-CONV-UNIX	Service charge to convert any NT7E24BC to an NT7E24FB (pre-loaded with a Unix Boot load).	\$ 4,200	\$ 3,500
SVC-OPC-CONV-AN15	Service charge to convert an NT7E24BC with AN15 to an NT7E24FB (pre-loaded with AN15.11).	\$ 4,200	\$ 3,500
SVC-OPC-CONV-AN16	Service charge to convert an NT7E24BC with AN16 to an NT7E24FB (pre-loaded with AN16.1)	\$ 4,200	\$ 3,500
SVC-OPC-CONV-AN17	Service charge to convert an NT7E24BC with AN17 to an NT7E24FB (pre-loaded with AN17.3)	\$ 4,200	\$ 3,500
SVC-OPC-CONV-AN18	Service charge to convert an NT7E24BC with AN18 to an NT7E24FB (pre-loaded with AN18.0)	\$ 4,200	\$ 3,500
SVC-OPC-CONV-AN19	Service charge to convert an NT7E24BC with AN19.05 to an NT7E24FB (pre-loaded with AN19.05).	\$ 4,200	\$ 3,500
SVC-OPC-CONV-AN19.6	Service charge to convert an NT7E24BC with AN19.6 to an NT7E24FB (pre-loaded with AN19.6).	\$ 4,200	\$ 3,500
SVC-OPC-CONV-AN20	Service charge to convert an NT7E24BC with AN20 to an NT7E24FB (pre-loaded with AN20.0)	\$ 4,200	\$ 3,500

In addition to converting the mechanical OPC to solid state, customers should give consideration to ordering the necessary PCMCIA flash memory cartridges to be used with the Solid State OPCs. The following three (3) types of PCMCIA flash memory cartridges are available:

1. Boot Load Cartridge – a PCMCIA cartridge that contains an OPC (UNIX) boot load.



- 2. AccessNode Program Store – a PCMCIA cartridge that contains a valid AccessNode software load. Different versions of this card are available for all current software releases.
- 3. Save and Restore Cartridge – a blank PCMCIA cartridge that is used for database and provisioning data backup.

As part of this OPC Conversion program and for a limited time, CTDI will continue to offer customers the PCMCIA cartridges at reduced prices (up to 60% savings from normal merchandise price levels). Order codes and special pricing for a variety of PCMCIA Compact Flash Cartridges are listed in Table #2 below. Please note that pricing in Table #2 is only available as part of this OPC Conversion program, and must be ordered on the same Purchase Order and at the same time as items listed in Table #1 above.

TABLE #2: Ancillary Equipment – Order Codes			
Order Code	Description	Base Unit Price	Volume Unit Price
OPCSAVEA7A	OPC Blank Save & Restore 256MB Compact Flash Pkg.	\$ 250	\$200
NT7E86BT-02	OPC Unix Boot Load on Compact Flash Pkg.	\$ 380	\$300
S4K90PAA7A	AN18 S/W on 256MB Compact Flash Pkg.	\$ 380	\$300
S4K90QBA7A	AN19 S/W on 256MB Compact Flash Pkg.	\$ 380	\$300
S4K90QCA7A	AN19.60 S/W on 256MB Compact Flash Pkg.	\$ 380	\$300
S4K90RAA7A	AN20 S/W on 256MB Compact Flash Pkg.	\$ 380	\$300

It should be noted that older AccessNode software releases have been Manufacture Discontinued (MD) as of March 1, 2005. (namely AN15.11, AN16.10, and AN17.3 and all associated software delivery media and supporting documentation as referenced in PCN ZNAN2005001_Iss1). As such, PCMCIA cartridges containing AN15.11, AN16.10 or AN17.3 are not available through normal distribution channels. If customers require access to PCMCIA cartridges with any of these AccessNode software loads, they should contact CTDI Global Call Center (1-888-444-9556 or 615-884-7455) for support.

Therefore and in order to enjoy the benefits of this conversion program, customers can submit Purchase Orders using the order codes listed in Tables #1 and #2 above and refer to contacts information in Table #3 below. Equipment to be converted should not be submitted with the Purchase Order.

TABLE #3: Contacts Information		
Category	Email	Phone #
Customer Service, RMAs & TAS	ncservice@ctdi.com	615-884-7455 or 1-888-444-9556
Order Management & POs	eluminant@ctdi.com	303-326-0850 (voice) 720-367-5262 (Fax)

Upon receipt of an order, a CTDI Representative will contact the Customer and provide an RMA number to be used for returning the OPC equipment that will be converted to solid state OPCs.



If desired, a customer can request a “one-time” advance shipment of Solid State OPCs for use as ‘seed stock’ to replace an initial batch of mechanical OPCs which are subsequently sent by the customer for conversion to solid state OPCs on a rotational basis. Advance shipments can be made under the “Advance Board Replacement” (ABR) or “Emergency Replacement” procedures of the RMA process as outlined below.

Advance Board Replacement (ABR) / Emergency Replacement	
Procedure	Notes
Advance Board Replacement will be shipped on or by the next business day, Emergency Replacement will be shipped on the same day after CTDI receives a purchase order from the CUSTOMER and provided CTDI has the equivalent part in stock	An extra charge of \$275 per item will apply
If an ABR shipment is made and the defective part is not returned to CTDI within 30 days, the CUSTOMER will be invoiced for the list price of the part.	N/A

Terms & Conditions

This program is a limited time offer, and will continue to be offered to customers on a first-come, first served basis. CTDI reserves the right to terminate this program at any time and without prior notice. Furthermore, to be eligible for this program:

1. Any new or used mechanical OPC (NT7E24BC) that is in good working condition, and which is at a hardware release level of 17 or above, can be converted to a Solid State OPC (NT7E24FB) and is eligible for this program.
2. The volume unit price for this conversion will be \$3,500. This price compares favorably with the standard repair charge of \$3,360 (which would otherwise return a mechanical OPC to the customer).
3. Any mechanical OPC that is to be converted must be in good working condition prior to conversion. Otherwise standard OPC repair charges will first be levied (in addition to \$3,500 conversion fee).
4. The customer is responsible for shipping charges in both directions.
5. Converted OPCs returned as part of this program will come with a new, 1-year warranty.

Further Contact Information

Please contact your CTDI’ Sales Representative for additional information on this OPC Conversion Program. To find out the name and contact information of your Sales Representative, please call 1-888-444-9556 or 615-884-7455.

Appendix A

Operation Controller (OPC) Overview

The Operations Controller (OPC) is a UNIX based computing platform contained on a plug-in module for use in an Access Bandwidth Manager (ABM) or Transport Bandwidth Manager (TBM) common equipment shelf. The OPC provides Operations, Administration, Maintenance, and Provisioning (OAM&P) functions for all AccessNode Network Elements (NEs) within its span of control (SOC), and serves as a gateway for communicating with Operations Support Systems (OSS) via either an X.25 packet network or dial-up facilities.

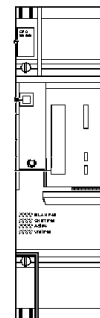
The OPC contains an Ethernet port, so that several OPCs can be networked together. AccessNode networks that are served by different OPCs, but share a common site, can all be accessed from any one point in the network(s) through the C-Net connections that tie the elements together. An OPC can also be accessed from any AccessNode system within its span of control.

In addition to being able to consolidate OSS communications links by networking OPCs together, each OPC can have a Backup OPC assigned to it to provide redundant OAM&P support in the event of an OPC hardware failure, or loss of communication as result of a facility failure between the OSS and the Primary OPC.

Legacy OPCs

Like all modern computing platforms, the legacy OPC (NT7E24BC) contains a hard disk drive to maintain a permanent record of program and data store required for proper operation of the system. Additionally, a DAT tape drive is include on board allowing new software to be delivered to the system and backup copies of various databases and provisioning data to be created on a regular basis.

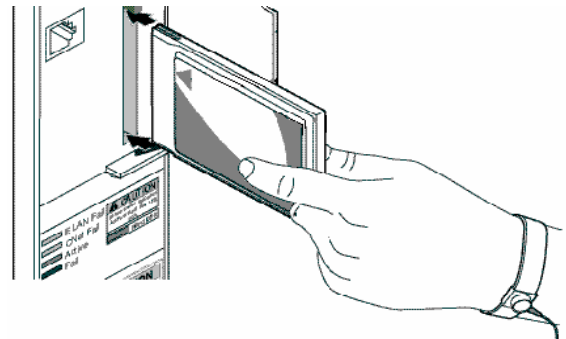
Since hard disks and tape drives use mechanical parts (e.g. bearings, drive lubricants, etc.), they will eventually experience a mechanical failure. A number of design improvements were made over the years to the legacy OPCs to maximize the life expectancy of these modules, including a 3-D shock-mount system and a “Disk in Use” LED on the faceplate. With proper handling and care, the life expectancy of the hard disk and/or tape drive in these units ranges from 5 to 8 years under good conditions.



Solid State OPC

The Solid State OPC (NT7E24FB) is a circuit pack that is fully compatible with all legacy OPCs and AccessNode systems. All moving parts have been eliminated by replacing the hard disk drive with non-volatile, semiconductor flash storage, and by replacing the tape drive with a PCMCIA card reader. Removable PCMCIA flash memory cartridges are used in place of magnetic DAT tapes. These cartridges are approximately the size of a credit card, but slightly thicker.

The Solid State OPC contains 960 MB of Dynamic Random Access Memory (DRAM) that has been configured as a 100% solid-state, storage device that appears to the host OPC exactly as a normal mechanical disk drive. The ultra-fast DRAM chips increase data access speeds, thereby minimizing I/O bottlenecks that constrain overall system performance.



Three (3) types of PCMCIA flash memory cartridges are available:

1. OPC Boot Load Cartridge – a PCMCIA cartridge that contains an OPC (UNIX) boot load.
2. AccessNode Program Store – a PCMCIA cartridge that contains a valid AccessNode software load. Different versions of this card are available for all current software releases.
3. Save and Restore Cartridge – a blank PCMCIA cartridge that is used for database and provisioning data backup.

Key Benefits

Compared with the mechanical version of the OPC, use of a Solid State OPC offers distinct advantages and benefits that can lead to a reduction in ongoing operating costs.

Increased Reliability & Robustness

The Mean Time Between Failures (MTBF) and useful lifespan of the OPC will increase due to a number of factors:

- Eliminate failure modes resulting from “normal wear and tear” of moving parts.
- Increased resistant to damage from shock, vibration, dust, moisture and magnetic fields
- Extended operating temperature range and increased resilience to heat buildup
- No permanent, hardware damage if power fails during read/write operations.

Backup Data Integrity

Unlike magnetic DAT tapes, solid state PCMCIA flash memory cartridges, which store backup copies of the software releases, databases, and provisioning data, are resistant to dust and magnetic fields during handling and storage. Furthermore, the data cartridge can be permanently left in the OPC cartridge slot for backup and restore operations if desired; minimizing the possibility that backup data or medium will be lost or misplaced.

Reduced Maintenance Activities

Ongoing maintenance costs are reduced since the Solid State OPC:

- Reduces the frequency of retrieving, returning, tracking, and replacing OPCs due to mechanical failures.
- Eliminates periodic maintenance activities to clean tape and/or align tape heads.
- Eliminates the need to replace old and worn DAT tapes (which become increasingly prone to failure with age).
- Reduces the time needed to perform backup and restore operations (due to faster data read-write capabilities vs DAT tape).
- Reduces the time needed to perform system upgrades (due to elimination of lengthy disk checks).