Exam Preparation Guide

HP Certified Professional
NonStop Performance Analysis and Tuning –
Level 2
Exam  # HP0-781

Purpose of the Exam Prep Guide

The intent of this guide is to set expectations about the content and the context of the exam and to help candidates prepare for the exam. In this guide, you will find recommended NonStop training courses, reference and study material to help you achieve a successful passing score.

Studies conducted by HP and Prometric show that a combination of course attendance and self-study maximizes the likelihood of passing the exam on the first attempt.

Audience

This exam is targeted for the following personnel, with a minimum three years' experience on the NonStop S-Series platforms running the G-Series NonStop Kernel Operating System. Examples of job roles:

- Authorized Service and Support personnel (field support technicians), who perform installations, upgrades, troubleshooting and maintenance tasks.
- Global Customer Support Center (GCSC) personnel, who may have specialized technical expertise in the operating system (e.g., security features, hardware, subsystems) and serve as support for both field support technicians and customers.
- Analyst SEs or Pre-Sales Technical Support (PSTS) personnel, who perform pre-sales consulting and technical account support, including tasks such as assessment of customer needs, system sizing and configuration, installation consulting, and so forth.
- NonStop Kernel Software Developers, System Integrators and Consultant Partners, Application Designers and Developers, Authorized Service Channel Partners and Distributors, Customers authorized to service their own equipment.

General areas of content include: NonStop Performance Fundamentals, Customer Profile, Physical Design and Configuration, Performance Monitoring, Data Collection, Performance Analysis, Implementation of Recommendations, Capacity Planning and Forecasting.
Certification Requirements
The NonStop Performance Analysis and Tuning Exam HP0-781 is an elective for certification as an Accredited System Engineer (ASE) in the NonStop S-series Systems track. It is also an elective for the NonStop Kernel Systems Engineer candidate within the Operating Systems designation. This elective is a Level 2 exam for both the ASE certification and the NonStop Kernel Certified Systems Engineer (CSE) accreditation.

ASE Prerequisites
Successful completion of the Accredited Platform Integrator (API) – Level 1 is required. One mandatory exam and three electives totaling four exams are required for ASE certification. For further ASE track information, visit the website at [http://education.hp.com/curr-nonstop.htm](http://education.hp.com/curr-nonstop.htm) (Instructor-Led Training) [http://education.nonstop.compaq.com/us/cat/httoc.htm](http://education.nonstop.compaq.com/us/cat/httoc.htm) (Self-Study Training)

Note that a minimum of three years’ experience or more is highly recommended for ASE certification. “Hands on” experience with the NonStop S-series system is essential.

Exam Details
NonStop Performance Analysis and Tuning is currently a live exam. You will receive a score report with your results after testing is complete. You can use the report to identify areas of strength and learn about areas to improve, if necessary.

Test Information
- **Number of test items:** 77
- **Item type:** multiple choice
- **Time commitment:** 90 minutes
- **Passing Score:** 53
- **Percent Correct:** 68
- **Reference material:** No online or hard copy reference material will be allowed at the testing site.

Exam Content
The following outline represents the specific areas of content covered in the exam. Use this outline to guide your study and to check your readiness for the exam. The exam measures your understanding of these areas. The approximate percentage of exam questions dedicated to each major content area is included in parenthesis. The higher the percentage, the more questions will be on the exam.

1) **Performance Fundamentals (26%)**
   1.1 Define performance terminology
   - Describe metrics as they relate to system resources
- Processor cost
- Transaction rates
- Throughput
- Utilization
- Service time
- Service time distribution
- Response time
- Capacity

1.2 Describe queueing theory
   - Identify the response time queueing formula
   - Describe the main types of queueing models
     - service time distribution
     - infinite/finite population
     - multiple servers
     - priority servicing

1.3 Describe the behaviors of queues
   - Demonstrate the relevance of queues to performance
   - Describe a queueing curve
     - amplification
   - Explain the increase in response time due to increased load
   - Describe the difference in response time using faster resources versus slower additional resources
   - Compare response times for common queues versus separate queues

1.4 Define NonStop Kernel performance fundamentals
   - Identify potential NSK bottlenecks as they relate to performance
   - Identify characteristics of bottlenecks
     - processor
     - process
     - disk
     - file/table
     - communications
       o LAN
       o WAN
       o ServerNet
       o TCP/IP

1.5 Describe the importance of load balancing on NSK systems
   - Describe load balancing
     - Processor
     - Disk
     - Communication line
     - Process

1.6 Describe performance-related characteristics of page faults
   - Identify the performance impact of page faults on the
     - Processor
Processes
Disks
Response time
• Describe the relationship between physical memory and page faults
• Describe the performance impact of Kernel Managed Swap Facility (KMSF)
• Describe the difference between a swap and a page fault

1.7 Describe the performance advantages of parallel processing for applications and utilities (including FastSort, PTCPIP, and parallel queries)
• Describe the performance benefits of a multiprocessor NonStop server environment
  – Requester/server model
  – Linear growth
  – Effect on response time
• Describe the performance benefits of distributed databases
  – Parallel batch job streams
  – Partitioning
  – Parallel queries

1.8 Describe the importance of priority structure
• Describe the relationship between process priorities and response time
• Describe the priority strategy for mixed workload enhancement (MWE)
• Describe the performance effects of priority inversion

1.9 Identify the impact of the resource queue length on performance
  – Processor
  – Process
  – Disk
  – Communications

1.10 Describe the impact of inter-nodal communications on performance
• Describe the performance impact of SuperClusters
• Describe the effect of network transactions

1.11 Describe the performance issues of TNS (CISC), accelerated, and Native code

1.12 Describe the performance impact of disk cache

1.13 Describe recommended performance guidelines
  – processor queues/utilization
  – disk queues/utilization
  – process queues/utilization
  – communication line
  – swap rate
  – transaction queues

2) Customer Profile (4%)

2.1 Identify business objective(s) of the critical applications
• Identify applicable Service Level Agreements (SLAs)
• Identify business applications
2.2 Obtain the customer system profile
- Identify the application software
  - Identify the business critical application components
  - Identify the application execution modes (Native Accelerated TNS)
  - Obtain the critical application flowcharts and transaction flows
  - Identify the database architecture

2.3 Obtain the performance objectives
- Identify the required performance criteria
- Validate the performance criteria
- Prioritize the performance objectives

3) Physical Design and Configuration (10%)

3.1 Identify the elements of physical database design related to performance
- Demonstrate the benefits of partitioning
- Demonstrate the impact of block sizes
  - Records per block
  - Splits
  - Access mode
- Demonstrate the impact of indexes or alternate keys
- Demonstrate the impact of index levels
- Demonstrate the impact of the primary key
  - Length
  - Value
  - Partitioning
  - Data type
- Compare audited versus unaudited files and tables
- Define the relationship between block sizes and cache
- Describe the impact of file compression
- Describe the impact of disk fragmentation
- Describe the use of explain plans
- Describe the impact of statistics on the query execution plan
- Compare Enscribe versus SQL
- Compare Format 1 files versus Format 2 files
- Describe the effect of locks
- Describe the differences between SQL/MP and SQL/MX partition and index placement
- Describe the impact of distributed databases

3.2 Describe application configuration attributes affecting performance
- Describe the differences between OLTP, DSS, batch and distributed applications
- Describe the impact of transaction lengths
- Describe the attributes of Pathway objects that can affect performance
  - Server class
  - TCP
  - PATHSEND
• Describe the attributes of a TUXEDO server class that can affect performance
• Describe the attributes of TM/MP, RDF and SMF configurations that can affect performance
• Describe the impact of
  – Backups and online dumps
  – Priorities
  – Nested servers
  – Process creations

3.3 Demonstrate knowledge of resource allocation
• Describe the usage of memory
• Describe the benefits of I/O distribution
• Describe the impact of I/O opens
• Describe the benefits of communication line distribution
• Describe the impact of process distribution
• Describe the impact of communication bandwidth
  – Expand
  – TCP/IP
  – ServerNet
  – WAN
  – LAN
  – MAN
  – ATM

4) Performance Monitoring (5%)
  4.1 Demonstrate performance monitoring tool usage
  – Measure
  – VIEWSYS
  – Web Viewpoint / Viewpoint
  – ASAP
  – TSM
  – PEEK
  – Pathway statistics
  – TUXEDO statistics
  – SCF
  – TMFCOM
  – RDFCOM
  – Pathway/XM

  4.2 Demonstrate the need for performance monitoring
  – Describe when performance monitoring should be done
  – Describe why performance monitoring should be done

5) Data Collection (14%)
  5.1 Explain when and why performance data collection should be done
  5.2 Demonstrate tool usage for data collection
     – Measure
TPDC
ASAP
VIEWSYS
PEEK
Pathway statistics
TUXEDO statistics
SCF
DSAP
FUP
SQLCI
MXCI
NSKCOM
Visual Query Planner (VQP)

6) Performance Analysis (30%)

6.1 Review the system configuration

- Identify the hardware resources
  - Obtain the system diagram
  - Obtain the storage paths
  - Obtain the communication subsystems configuration
  - Obtain the memory configuration
- Identify the system software
  - Determine the OS version
  - Determine the subsystem software level or version
  - Obtain the mapping of system resources and processes
- Describe the process of gathering system configuration information
  - Analyze SCF system information
    o Processors
    o Disk
    o Tape
    o Communications
    o Processes
    o Topology
  - Analyze the TMF environment
  - Analyze PEEK data
    o PCBs
    o Memory
    o Segments
    o TLEs (Time List Elements)
  - Discover the operating system release and IPMs
  - Identify the system operational tools
  - Analyze the OSS system configuration (JAVA, iTPWebServer, ATP Pages, Pathway/iTS), if appropriate

6.2 Review the application configuration

- Describe the process of gathering application configuration information
  - Analyze the application types
- Describe the application transaction flow
- Describe the application priority scheme
- Describe Pathway configuration information
- Describe the batch processing information
- Describe DSS processing information
- Describe the database configuration setup
- Describe the communication protocols used
- Describe the known application bottlenecks
- Describe the OSS application environment

6.3 Determine the peak period of activity
- Analyze the Measure data
- Obtain the transaction counts if available
- Review past historical data (if available)

6.4 Analyze the data to determine queues and imbalances
- Analyze Measure data for imbalances
  - Describe the analysis of processor data
    o Utilization
    o Queues
    o SWAPS
    o DISC I/O and cache hits
    o Free memory
    o Native Accelerated TNS CPU Busy
    o Process overhead
  - Describe the analysis of DISC data
    o Utilization
    o Queues
    o SWAPS
    o DISC I/O and cache hits
  - Describe analysis of PROCESS data
    o Utilization
    o Queues
    o Page faults
    o Process priorities
    o Memory consumption
    o Native, accelerated, TNS code and compatibility traps
  - Describe the analysis of communications line data
    o Describe the analysis of utilization
    o Describe attributes of the communications lines
      half or full duplex
      line speed
    - Describe line capacity calculation based on byte transfer rates
  - Describe the analysis of file activity (I/Os - read/write intensive)
    o Identify the busiest files within the system and by volume
    o Identify read or write intensive
    o Identify locks on files
  - Describe the analysis of TMF data
    o Identify TMF transaction rates
6.5 Describe the analysis of external devices (HSM Hardware Security Module)
- Describe the influence of the external device on the transaction
- Describe the utilization of the external device versus its capacity
- Describe the analysis of the service times for the external devices

6.6 Describe failure analysis
- Describe the analysis of single processor failure for all processors within the system
  - Describe the analysis of processor utilization for each processor
  - Describe the analysis of memory usage

6.7 Describe the analysis of Pathway statistics
- Describe the analysis of buffer pools
- Describe the analysis of servers
- Describe the analysis of queues
- Describe the analysis of requesters
- Describe the analysis of terminal data
- Describe the analysis of priorities within Pathway objects

6.8 Describe analysis of the OSS environment
- Describe the analysis of OSS cache
- Demonstrate knowledge of monitoring an OSS environment
- Demonstrate analysis of OSS file name translation

6.9 Describe the report preparation and recommendations
- Describe output from performance analysis
- Describe preparation of the recommendations

6.10 Demonstrate performance analysis tool usage
- MEASCOM
- GPA
- TPM / INSIGHT / DataBase BROWSER
- TPDC / SPAM
- ASAP
- ENFORM with Measure structured data files
- DSAP
- SQLCI
- MXCI
- FUP
- TRA (Tandem Reload Analyzer)
  - VQP (Visual Query Planner)

7) Implementation of Recommendations (3%)

7.1 Verify the performance recommendations with the customer
- Prioritize the performance recommendations based on:
  - Biggest ROI (most important first)
- Minimum system impact
- Customer request
- Interdependencies
- Best practices
7.2 Execute the recommended changes
- Make one change at a time, where possible
- Document all changes
- Iterate the performance analysis and verify if the change improved performance
- Obtain customer feedback
  - Determine if the objectives are achievable
    - Review system resources and/or applications
  - Repeat the cycle until the objectives are satisfied
- Write the summary report
- Obtain customer signoff

8) Capacity Planning and Forecasting (8%)

8.1 Obtain the performance baseline for current system(s)
- Establish the baseline (tuned system)
- Identify the transaction flows
  - OLTP
  - Batch
  - Query
- Identify the process cost by transaction
- Identify the disk cost by transaction
- Identify the communications cost by transaction
- Identify the processor utilization by transaction
- Describe how to obtain the transaction counts
- Demonstrate the use of NSK tools to collect and analyze information
  - Measure
  - MeasTCM
  - TCM Expert
- Describe the components of the performance model
- Describe the process of creating a performance model
  - TCM
  - Process categories
  - Workload apportionment
  - Transaction count
- Describe the batch workload assumptions
- Describe the query workload assumptions
- Describe performance modeling of workloads
  - OLTP
  - Batch
  - Query

8.2 Define the growth of current system and application functions
- Map business projections to transaction growth
- Describe how the application can be scaled

8.3 Describe the effects of new functionality on the performance model
- Identify new transaction flows
  - OLTP
- Batch
- Query
  - Identify process utilization by transaction
  - Identify disk utilization by transaction
  - Identify communications utilization by transaction
  - Identify processor utilization by transaction
  - Describe how new transactions are entered into the transaction model

8.4 Describe the performance planning for processor failures
  - Determine the resource utilization to account for failure scenarios
  - Determine the response times for failure scenarios

8.5 Determine the system configuration for future growth
  - Determine the basic calculations needed to size for system growth
  - Demonstrate the use of calculation results to determine system size recommendations
  - Describe the use of TCM for future system configuration
  - Describe the use of TCM for what-if growth scenarios

8.6 Describe the use of TCM
  - Describe the use of TCM for capacity planning reporting
  - Describe the limitations of TCM for modeling and capacity planning
Recommended Training and Study References

This section lists training courses and documents that can help you acquire a majority of the knowledge and skills needed to pass the exam. You must also gain the practical experience outlined in this guide.

You are not required to take the courses listed in this section. However, HP strongly recommends that you attend the classes, participate in class labs, and thoroughly review all course material and documents before taking the exam, even if you believe you have sufficient on-the-job experience.

Instructor-Led Training

Use the information in this guide and the practical experience you have gained to determine your need for the instructor-led training.

The NonStop Systems Certification (Level 2) includes references to a variety of materials that provide information included on this certification exam. Completion of courses and review of materials is recommended, but not required, for success on this exam.

Recommended Minimum Courses

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<th>Course Title</th>
<th>Part Number</th>
<th>Type</th>
<th>Length</th>
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<tr>
<td>Performance Analysis and Tuning</td>
<td>U4195S</td>
<td>ILT</td>
<td>5 days</td>
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<tr>
<td>NonStop Kernel Architecture</td>
<td>U4178S</td>
<td>ILT</td>
<td>8 days</td>
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<tr>
<td>NonStop Kernel Principles</td>
<td>U4179S</td>
<td>ILT</td>
<td>4 days</td>
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Additional Highly Recommended Courses

<table>
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<th>Part Number</th>
<th>Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathway Performance Workshop</td>
<td>U4193S</td>
<td>ILT</td>
<td>3 days</td>
</tr>
<tr>
<td>Pathway System Management</td>
<td>U4194S</td>
<td>ILT</td>
<td>3 days</td>
</tr>
</tbody>
</table>

ILT = Instructor-Led Training

Other Recommended Resources

Refer to the PDF version of the document, Performance Analysis of Transaction Processing Systems by Wilbur H. Highleyman on the NonStop website under Current Exams.

Note that this file is approximately 35 MB and requires a high-speed connection for downloading. http://education.nonstop.compaq.com/us/cert/index.htm

Courses Descriptions

Check web site course descriptions for prerequisites at:

http://education.hp.com/curr-nonstop.htm (Instructor-Led Training)

http://education.nonstop.compaq.com/us/cat/httoc.htm (Self-Study Training)
You can also call (800) 621-9198 in North America, to speak with an education consultant or register for courses. If you are outside of the U.S., call +1 (408) 285-9508 or contact your local education and training resource. Or, you can send an email to nonstop.training@hp.com.

Additional Recommended Reference Materials for This Exam

References to the majority of questions found in this exam can be found in manuals contained in the online TIM (Total Information Manager) collections. This guide typically references the latest release available in the TIM document collection. TIM is a single interface to all NonStop documentation and support information.

External users must subscribe to the TIM CD collection. See your NonStop Representative for more information.

NOTE: TIM must be installed on your system before using the following default access settings.

External: [www.hp.com/go/ntl](http://www.hp.com/go/ntl)

**Documentation**

References to the majority of questions found in this exam can be found in manuals contained in the Online TIM collections. TIM (Total Information Manager) is a single interface to all Tandem documentation and support information. The latest version of the software was used in the preparation of this test, however, changes since then may outdate these references. Information nested (~) indicates subsections emphasized in the document.

- Accelerator Manual (108428)
  - Introduction
  - How the Accelerator Works

- Availability Guide for Application Design (124511-001)
  - Availability in the Pathway Transaction-Processing Environment
    - Availability of Pathway/XM Server Classes
  - Minimizing Program Errors
    - Using Reusable Program Modules

- Availability Guide for Performance Management (115733)
  - Analyzing Performance Information
    - Accelerating Applications for TNS/R Systems
    - Design Characteristics That Enhance Performance
  - Performance Management Concepts
  - Establishing Performance Requirements
    - What Are Service-Level Agreements?
    - Creating Service-Level Agreements
  - Gathering Performance Information
    - Listing File Creation Parameters
    - Taking Measurements During Peak Periods
    - Taking Ongoing Measurements
    - What to Include in Your Application Diagram
    - What to Include in Your System Diagram
When Should You Measure Performance?
- Introduction to Performance Management
  Measuring Outages
  What Is Performance Management
- Performance Management Concepts
  File Partitioning
  Process Characteristics and System Performance
  What Is Queue Management?
  When to Use PEEK
  When to Use PUP
- Performance Optimization and Tuning
  Assigning Process Priorities
  Minimizing Disk I/O Operations
  Mixed Workload Enhancement and Process Priorities
  The 80/20 (or 90/10) Rule and System Tuning
  Tuning Guidelines
  Performance Optimization and Tuning Steps
  Solving Memory Pressure

- Compaq NonStop SQL/MP Programming Manual for COBOL85 (429326)
  - Error and Status Reporting
    Returning Performance and Statistics Information

- ENSCRIBE Programmer's Guide (137692)
  - Key-sequenced Files
    Key-sequenced Tree Structure
  - Positioning Within Structured Files
    Alternate Keys in a Key-sequenced File

- Expand Network Management and Troubleshooting Guide (425828-001)
  - Tuning
    Congestion Control

- Envoy ACP/XF Reference Manual (067705)
  - Introduction
    Half-Duplex and Full-Duplex Lines

- FastSort Manual (429834-001)
  - Introduction to FastSort
    Sort and Merge Operations

- GPA Manual (135081)
  - Using GPA Information
    CPU Failure Simulation

- Introduction to Networking for NonStop S-Series Servers (429949-001)
  - The Expand Network
    Fault-Tolerant Operation
    Measure

- Introduction to S-Series Servers (130961)
  - S-Series Server Architecture
    Easy Expansion of Data
Parallel Processing for High Performance
~ Online transaction Processing Systems
   Requirements of Decision Support Systems
• Kernel-Managed Swap Facility (KSFM) Manual (425824-001)
   ~ Managing Kernel-Managed Swap Files
   ~ Checking Swap Statistics
• Measure GUI Users Guide (140772-001)
   ~ Monitoring Resource Use and Application Activity
   ~ Queuing for the CPU
   ~ Analyzing Process Queuing at the CPU
   ~ Appendix B
   ~ Profiles of Diskopen, Diskfile, File, ProcessH, TMF, and SQL Performance
   ~ Profile Specifications, home-trans-qtime
   ~ Profile Specifications, pct-busy-time
• Measure Reference Manual (425077-001)
   ~ Entities and Counters
   ~ CPU, DDL Record for D-Series CPU Entities
   ~ CPU-BUSY-TIME
   ~ DEVICE-QBUSY-TIME
   ~ REQUEST-QTIME
   ~ HITS
• Measure Reference Manual (427635)
   ~ Configuring and Running Measurements
   ~ Entity Types and Specifications
   ~ Entities and Counters
   ~ ABORT-TRANS
   ~ Disc (scan the material)
   ~ DISCFILE
   ~ DISCOPEN
   ~ PRES-PAGES-END
   ~ PRES-PAGES-QTIME
   ~ PRES-PAGES-START
   ~ RECV-QTIME
   ~ Usage Notes for All DISCOPEN Entities
   ~ MEASCOM Commands
   ~ Start Measurement, Example
   ~ SET REPORT
• Measure User’s Guide (427634-001)
   ~ Balancing and Tuning a System
   ~ Balancing a System
   ~ Balancing CPU Activity
   ~ Balancing Memory Consumption and Minimizing Swapping
   ~ Using Cache
• NonStop SQL/MP Installation and Management Guide (429830-001)
   ~ Enhancing Performance
Understanding the Implications of Concurrency, Moving a Partition
Knowing When to Update Statistics

- Understanding and Planning Database Tables
  Creating Indexes for MIN and MAX Functions
  Key Levels
  Performance Benefits of Indexes

- NonStop SQL/MP Query Guide (118375)
  - Analyzing Query Performance
    Simple Query Example

- NonStop SQL/MP Reference Manual (142115)
  - F
    Examples—FILEINFO

- NonStop TMF Introduction (421952-001)
  - Application Performance
    Writes to Database Files

- NonStop TS/MP System Management Manual (135027)
  - Configuring Objects in a PATHMON Environment
    CREATEDELAY and DELETEDELAY
  - SERVER Commands
    MAXLINKS number
    STATS SERVER Command

- Open System Services Management and Operations Guide (520370-001)
  - Introducing Open System Services
    OSS File-System Components
  - Managing Filesets
    Generated Catalog Files

- Pathway/TS System Management Manual (120040)
  - Examples of System Management Tasks
    Configuring and Starting a Simple PATHMON Environment (Task 1)
  - Maintaining Pathway/TS Objects
    Improving Performance
    Managing Links
    The INFO TERM Command
  - Terminal Control Process (TCP) Commands
    STATS { ON | OFF }
    STATS TCP Command, Considerations, Example
    The STATS TCP Command
  - Tuning Your System Using Statistics
    Memory Management and Allocation, Storage Area
    SERVERPOOL

- PEEK Reference Manual (118068)
  - PEEK Syntax and Examples
    DYNAMIC Option

- PEEK Reference Manual (422607-001)
  - PEEK Syntax and Examples
Elements of the PAGING Display
PAGING Option (G05.xx and Later G-Series Releases)
Syntax to Run PEEK
- Getting Started With PEEK
  Using PEEK Options
- Glossary
  Page
  Frame

- SCF Reference Manual for G-Series Releases (520413-001)
  Using SCF to configure and Manage NonStop S-Series Servers
  Running SCP at a High Pin

- SCF Reference Manual for the Storage Subsystem (429317-001)
  Managing Magnetic and Virtual Disks
  Analyzing a STATS DISK Report for Magnetic Disk Drives
  Example of a STATS DISK Report for Magnetic Disk Drives
  Storage Subsystem Commands (Continued)
  ALTER DISK, LABEL Considerations
  Magnetic Disk Attributes
  STATS Command
  STATUS Command

- SQL/MP Installation and Management Guide (429830)
  Enhancing Performance
  Optimizing Index Use
  Analyzing the Possible Impact of Running UPDATE STATISTICS

- SQL/MP Reference Manual (429831)
  I
  INDEXES Table
  U
  Considerations—UPDATE STATISTICS

- SQL/MX Query Guide (429826)
  Reviewing Query Execution Plans
  Using the Visual Query Planner
  Displaying Selected Columns of the Execution Plan

- TMF Reference Manual (422842-001)
  TMFCOM Commands (Continued)
  STATUS TMF

- TNS/R Native Application Migration Guide (136525)
  Introduction to Native Mode (No Subsection)

- Tandem Capacity Model (TCM) Manual (424093-001)
  Creating a Performance Model
  Using the Sensitivity Analysis Model
  Creating a WA Model
  Example of a Transaction Count Table
  Introduction
  Architecture and Components
Assumptions
Performing What-if Analyses
- The Performance Model
  Add Transaction
  Change Transaction
  Consumption Model Screen
  Planning Timeline Model Screen
  Performance Model Components
- Using MeasTCM
  Collecting Measure Samples
  Customizing Your Process Category Control File
- Using TCM Expert
  CSV Sample Data Required
- Workload Apportionment Model
  Trend Chart

- Tandem Reload Analyzer Manual (129830)
  - Using Tandem Reload Analyzer
    When to Reload
    Data Chain Information
    Understanding Data Chain Information

- ViewPoint Manual (426801-001)
  - Introduction to ViewPoint
    Network Status Summary Screen

Other References
- ASAP Extension Manual (525265-001) Chapter 1 Page 1
- ASAP Server Manual (ASAP 2.0) (522303-001) Chapter 1 Page 5
- NonStop RDF/IMP and IMPX System Management Manual (429600-001)
  (NonStop RDF 1.3), Chapter 3 Page 25; Chapter 8 Pages 63 and 84
- NonStop SQL/MP Programming Manual for COBOL85 (429326-001)
  Chapter 9 Page 22
- Compaq NonStop SQL/MP Reference Manual (429831-001) Section 1
  Page 9
- NonStop TMF Planning and Configuration Guide (422914-001) Chapter 3
  Page 42
- ETC PAT class, Module 2
  Page 82
- GUARDIAN OPERATIONS SUMMARY, Chapter 7 Page 15
  Page 9
- Introduction to NonStop Systems (115734) Pages 2-15
• Measure User's Guide (427634) Chapter 1 Page 1; Chapter 5 Page 1; Chapter 7 Pages 2 and 12
• NonStop SQL Physical Database Design course material Module 1 Pages 8, 9 and 11
• NonStop SQL/MP Installation and Management Guide (429830-001) Chapter 3 Page 4
• NonStop SQL/MP Query Guide (118375) Chapter 6 Page 3
• NonStop SQL/MP Reference Manual (142115) Section F Page 24
• NonStop TUXEDO System Administration Guide (125177) Chapter 1 Page 9
• Performance Analysis and Tuning course (141064) Module 2, Slide 19
• Performance Analysis and Tuning course (141064) Section 2 Page 24
• Performance Analysis and Tuning for NonStop S Series Systems (77371) Module 3 Page 5, 11, 13; Module 9 Page 20; Lab 03
• Performance and Tuning Class Courseware (141065) Module 1, Slide 4; Module 2, Slides 11, 14, 16, 18, and 24
• Tandem Capacity Model (TCM) manual 424093-01 Chapter 9 Page 19
• Tandem Performance Data Collector (TPDC) (425647) Chapter 1 Pages 1, 4, and 8
• Tandem Reload Analyzer Manual-129830 Chapter 2 Page 10
• ViewSys User's Guide (103491) Chapter 2

Conclusion

HP wishes you success in the NonStop Accredited Professional Program and in passing this exam. The exam results will provide valuable feedback to guide you in assessing your areas of strength or weakness. Successful completion of the exam confirms your competency in NonStop Performance Analysis and Tuning skills. However, continued training, job experience and completion of the targeted certification will further increase your level of expertise and your ability to effectively support NonStop systems and solutions.