Data Sheet

We make sure

FUJITSU COMPUTERS SIEMENS

UDS/SQL (BS2000/OSD) V2.5 Universal Database System

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Introduction

UDS/SQL is a mature, general-purpose, high-performance database system, providing a basis for implementing cost-effective solutions for the most diverse requirements facing modern IT systems. The particular strengths of UDS/SQL are its excellent performance features and a wealth of tuning options. The multitasking/multithreading architecture and advanced buffer (cache) techniques make very fast response times possible even with exceptionally heavy throughput requirements. The multi-DB concept enables an application program to access several databases concurrently.

With more than 32,000 record types per database and more than 2 billion records per record type, data resources of virtually unlimited size can be managed.

UDS/SQL is available for all BS2000/OSD Business Servers, and it can be used as a data server in heterogeneous system environments (e.g. with Solaris, Linux Windows).

Database creation, data management and data backup are supported and simplified by powerful utility routines.

UDS/SQL is integrated in the Fujitsu Siemens Computers online transaction processing (OLTP) system strategy and in our product portfolio for meeting current and future demands on IT system environments, e.g.:

Support during application software development

Client/server architectures for OLTP operation

Availability of (existing) centrally stored data at the end-user's PC workstation

Use of existing data resources for data warehousing concepts

Provision of existing data resources on the World Wide Web (WWW*)*

Functional Description

UDS/SQL features a rich set of functions and utilities, enabling the user to simplify and optimize operation and use of the database.

Logical data structure

The data to be stored is described in a special definition language, the Data Description Language (DDL), e.g.:

- Database realms
- Record types and data fields
- Set relationships
- Access keys and access paths

The result of this logical data description is called the "schema".
By describing subareas of the database it is possible to define user views (subschemas) for individual applications.
UDS/SQL ensures the consistency of the subschemas used by the DBH and in the application program. This means that key data protection requirements can be realized through the system concept per se.

Physical data structure

Based on the schema definition, UDS/SQL automatically determines the internal physical storage organization. This can be optimized with the aid of the Storage Structure Language (SSL), e.g. to divide the data areas

- according to access frequency or
- according to relationship (clustering).

This results in optimized performance and increased throughput, particularly in extremely time-critical interactive applications. Changes to the physical storage structure have no effect on the application programs.

Data manipulation

The following interfaces are available for submitting queries and making modifications to UDS/SQL databases:
The COBOL-DML (Data Manipulation Language) enables statements to be integrated into COBOL programs. COBOL-DML statements form part of the COBOL85 and COBOL2000 compiler (no precompilation necessary).
A CALL interface allowing dynamic data manipulation is available for COBOL and other programming languages (Assembler, FORTRAN, PASCAL, PL1).
On top of that, UDS/SQL features a SQL interface that can be used by the 4th-generation language DRIVE as well as via the ODBC interface.
The product ODBC Rocket from gfs supports the ODBC interface for remote data access to UDS/SQL from a client system. With this product, the UDS/SQL user can access UDS/SQL data with SQL commands from his or her Windows PC and process this data on the PC with any ODBC tool.
SQL and COBOL-DML statements can be used together in an application. The coexistence of the interfaces is an important feature of UDS/SQL.

Database operation and dynamic administration

All tasks, such as creating the database, loading mass data, data backup, checking and maintaining the data resources, are supported by powerful utilities and auxiliary procedures. This makes UDS/SQL an efficient and user-friendly system.

The XS capability of database handler (DBH), applications and utilities enables large volumes of data to be held in main memory, reduces the number of input/output operations and consequently increases throughput.
The Database Administration Language (DAL) enables the administrator to intervene in the online operation of UDS/SQL. DAL commands can be passed to the database handler from any terminals in the network. This allows swift and dynamic responses to be made to DBH messages.
The UDS/SQL monitor provides statistics on throughput, resource utilization etc., as well as detailed information on individual DMLs or transactions. These values can be analyzed to fine-tune the database according to the load requirements.
In batch mode, the tight link between DBH and application program provides a further increase in throughput.

Recovery concepts and data backup

The UDS/SQL backup and recovery concept consists of the following components:

- Transaction security (rollback mechanism and restart following a system crash).
- Resource protection (use of a variety of recovery methods for system-aided data recovery following database errors).
- Access security (protection against unauthorized access based on the schema/subschema concept, as well as through assignment and revocation of access rights. Secure authentication and secure communication between application program and UDS/SQL in transaction mode with *open*UTM).

Global Storage - offering access times up to 2000 times faster than conventional magnetic disks - can be used for transaction logging.
The recovery mechanism permits the use of ARCHIVE for the backup service. This means that there is also support for functions such as streaming mode for magnetic tape cartridges.

Availability

Mirroring of data resources is possible using hardware functionality or Dual Recording by Volume (DRV). Any equalization necessary for DRV is performed very quickly by UDS/SQL. If one magnetic disk becomes defective, the data on the other disk can be accessed immediately, with no interruption.
With UDS/SQL, the Symmetrix Timefinder function can also be used.
The system can switch from winter to summer time, and vice versa, without interrupting ongoing operation (UFZ - interrupt-free time change). Local time (LT) is displayed in outputs or messages, while internally the strictly monotonously ascending UTC (Universal Time Coordinated) is used.

Value ranges

- 222 databases per configuration
- Page lengths of 2048/4000/8096 bytes
- Record lengths of 2020/3968/8064 bytes
- 32,767 set relationships per database
- 32,767 record types per database [1])
- 2,147,483,647 records per record type[1)]
- UDS V2.3B: realm length 64 GB (for page length 4Kb), resp. 128 GB (for page length 8Kb)

1) with page lengths of 4000/8096 bytes

Supplementary Data

Technical requirements

Hardware

BS2000/OSD Business Server

Software

BS2000/OSD-BC or higher V5.0A or
OSD/XC or higher V1.0A
ARCHIVE or higher V6.0A or
HSMS or higher V6.0A
CRTE or higher V2.3C (for Unicode support: or higher V2.6A)
SORT or higher V7.8A
ONETSERV or higher V2.0A

Software products required for certain functions:
UDS-D V2.5A only (own configuration)
UDS-D or higher V2.3A (foreign configuration)
UDS-KDBS V2.2A (*1)
UDS-IQS or higher V4.0A
ODBC-Rocket or higher V3.7A (*2)
ADILOS or higher V6.4A
INFPLAN or higher V5.3C
JV or higher V13.0D
LMS or higher V3.3A
SDF-P or higher V2.2A
COBOL85 or higher V2.3A
COBOL2000 or higher V1.0B (for Unicode support: or higher V1.4A)
DRIVE/WINDOWS V2.1B40
openUTM or higher V5.1A

(*1) UDS-KDBS:
Subschemas accessed with KDBS have to be compiled using 'FORM IS OLD' furthermore.
(*2) ODBC-Rocket is a product of our partner gfs.

Operating mode

Interactive dialog and batch

Implementation language

SPL and Assembler
User interface
Dependent on the application
Installation
By the user in accordance with the Release Notice.
Documentation
User guide: Design and Definition
User guide: Creation and Restructuring
User guide: Database Operation
User guide: Recovery, Information and Reorganization
User guide: Applications Programming
Reference manual: Messages
Ready reference
The documentation is available online at http://manuals.fujitsu-siemens.com or can be ordered in the form of printed manuals for an additional payment at http://FSC-manualshop.com .

Demands on the user

BS2000 and UDS/SQL knowledge

Conditions

This software product is supplied to the customer against payment by installments subject to our conditions for the use of software products.

Ordering and delivery

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