Fujitsu Enterprise Postgres on IBM Power®

Datasheet

Fujitsu Enterprise Postgres on IBM Power® - Postgres to the power of Fujitsu

Fujitsu's contribution to PostgreSQL

PostgreSQL is one of the most advanced and widely used open source relational database management systems (RDBMS) in the world.

Fujitsu has been involved in the PostgreSQL community since 2003.

Fujitsu is a Major Sponsor of the PostgreSQL community, contributing to the development of various features.

Major Sponsors are selected by the Sponsorship Committee and indicate organizations that have provided significant and/or sustaining contributions over many years.

Fujitsu Enterprise Postgres

Fujitsu Enterprise Postgres is a mission critical RDMS on PostgreSQL that is ideal for hybrid, multi-cloud.

Fujitsu Enterprise Postgres is designed to be fully compatible with the feature-rich, open-source PostgreSQL used by millions of users worldwide.

Fujitsu Enterprise Postgres builds on the strengths of open-source PostgreSQL with enhanced enterprise features such as high performance, reliability, and security.

Fujitsu Enterprise Postgres enables integration with a wide range of software, information use systems, development tools, and application runtime environments.

Database systems remain free from vendor lock-in, while achieving advanced security and high reliability. Fujitsu's strong track record in mission-critical enterprise systems supports this technology.

The improved advanced security and high reliability has created substantial benefits to further compliment intelligent business data systems for enterprises.

IBM Power®

IBM Power® is designed to scale cost-effectively for virtual machine-based or containerized, mission-critical, data-intensive applications.

Fujitsu Enterprise Postgres on IBM Power®

Open source native PostgreSQL with enterprise features on IBM Power®.

The combination of Fujitsu Enterprise Postgres, which is enhanced to deliver high performance in hybrid cloud environments, with IBM Power® provides an enterprise infrastructure for high performance.

What Fujitsu Enterprise Postgres on IBM Power® has to offer

- Digital transformation
- Business continuity/containerization

Digital transformation

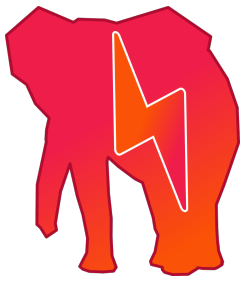
Build applications on a high-performance OCP Power 10 infrastructure.

Accelerate DX and provide a great developer experience.

Business continuity/containerization

Leverage open container technologies built on-premises or in the cloud to refactor applications into containerized microservices. Leverage globally without platform or vendor dependencies.

Choose from on-premises, cloud and OpenShift environments, and subscription licenses can be converted across platforms.



Fujitsu Enterprise Postgres on IBM Power®

Enterprise infrastructure combined with enhanced Postgres database designed to deliver superior performance in hybrid cloud environments

Features and benefits

Main features	Benefits
PostgreSQL-based RDBMS	
• 100% compatible with PostgreSQL	• No vendor lock-in
• Compatible with other PostgreSQL databases	• Supports Zabbix, Apache, Tomcat
• Extends open source PostgreSQL	• Enterprise quality
• Simple migration from proprietary databases	• Low migration cost
Security	
• Transparent Data Encryption	• Increased security with PCI DSS-compliant 256-bit encryption
• Data Masking	• Protects production data
• Dedicated Audit Log	• Efficient and accurate monitoring of audit log
• Key management for Transparent Data Encryption	• Reduced risk of data leakage; lower operational costs
• Cloud-based key management	• Improved security by storing keys in secure external services
• Confidentiality management	• Easier and more efficient security operations
Performance	
• Vertical Clustered Index†	• Improved performance for large data sets
• Global Meta Cache	• Reduced overall memory usage with little performance degradation
• High-speed data load	• Loads large volumes of data using parallelism according to available CPU
Reliability and High Availability	
• Mirroring Controller	• Automated instant failover
• Connection Manager	• Business continuity and fast failover without SQL relay
• Database Mirroring	• Two copies of a single database reside on different server instances
• Database Transaction Log Mirroring	• Transaction records are continuously streamed to the standby database
• WAL duplication	• Solves PostgreSQL's single point of failure
DevOps	
• System usage statistics	• Users can access database's utilization metrics and statistics
• WebAdmin	• Easily manage database and its contents saving time and money
• Enhanced GUI for cluster management	• Management tool makes setup and cluster management simpler
Ease of use	
• Easy installation, setup and management	• Reduced technical staff overheads
• Web-based and command line interfaces	• Simplified operation management
• One-click backup and recovery	• Easily performed high-level tasks
Fujitsu support options	
• Version compatibility	• Low migration cost due to compatibility verification
• Provides patches following PostgreSQL updates	• Guaranteed standard support
• Guaranteed support from end of sales period	• Optional extended support period; extendable

† Fujitsu's implementation of In-Memory Columnar Index by Fujitsu Laboratories Limited

Topics

PostgreSQL-based database system

Fujitsu Enterprise Postgres is based on PostgreSQL, the world's most advanced feature-rich open source database system. PostgreSQL, used by millions of users globally, enables integration with a wide range of software, information utilization systems, development tools, and application runtime environments.

Easy and cost-effective migration

Fujitsu Enterprise Postgres has been designed to be fully compatible with open source PostgreSQL databases and also offers enhanced compatibility when migrating from existing Oracle® systems.

The solution significantly reduces migration time so that budget restraints and business disruption are no longer a concern; the migration process has now become much more streamlined.

Enhanced system integration

The utilization of PostgreSQL technology enables integration with a wide range of software, information utilization systems, development tools, and application runtime environments. Investing in additional software systems and high migration costs are no longer considerations. User disruption is also avoided due to the ability to retain software products that users are already familiar with.

Ease of use

Reduced expenditure for database design and implementation

Fujitsu Enterprise Postgres employs a minimal setup process based on optimized resource deployment. The setup process performs dynamic hardware resource detection during installation and the software is automatically tuned with the customer's server configuration. Using this method, the parameter and backup settings are all completed during the deployment of the system.

Fujitsu's innovative development methodology has been a key factor in producing an installation process that takes just three simple steps to perform:

1. Launch the installer (the installation is completed using automatically tuned values).
2. Launch WebAdmin (GUI management tool).
3. Use WebAdmin to create new instances and configure backup and recovery options.

This simplified installation and setup process allows Fujitsu Enterprise Postgres to be implemented within a very efficient time frame.

Reduced reliance on technical staff

Many operational tasks can be carried out by non-technical staff. For example, to back up or restore instances, simply click to backup and click to restore.

Fujitsu support

High-level support

Standard support and extended support options available to customers for ongoing assurance, so that future support and system confidence is a guaranteed business outcome.

Security

Transparent Data Encryption

Secure 256-bit transparent data encryption (PCI-DSS compliant) and redundancy for high reliability and asset protection that is aligned with your data management strategy.

Data Masking

Redacts data using masking policies to obscure data returned from queries, making it available for reference without exposing the actual data. Data masking makes it safe to use production data in a test or development environment.

Key management for Transparent Data Encryption

By storing the encryption key outside the database, you can securely store the master encryption key and reduce the risk of data leakage. The database administrator is released from the operation and management of the master encryption key.

Cloud-based key management

Supports plug-ins to call communication adapters in the cloud and to share encryption keys. Key management services in the cloud can reduce operational costs and increase security.

Confidentiality management

Simpler operations for role-based access control (RBAC) setting and audit. Easier and efficient security operations, and reduced human errors, minimizing security risks.

Performance

Vertical Clustered Index

The VCI engine integrated with Fujitsu Enterprise Postgres provides significantly faster analytical query processing by storing a columnar representation of row-oriented data in memory. Tests show that for a 280 GB dataset on a 56-core Linux node, this results in almost 5 times the throughput of analytical queries while maintaining equivalent transaction volumes.

Global Meta Cache

System catalog and table information is cached in shared memory instead of in per-process memory. The memory usage of the overall system is reduced to enhance system performance.

Reliability and High Availability

Mirroring Controller

Constantly checks the status of database processes, and if a problem is detected, automatically redirects operations to the standby server, without the need for human intervention.

Connection Manager keeps your business running

Heartbeat monitoring is performed between client and server, so business can be resumed immediately from the application side in case a failure occurs. Applications can connect to an instance without being aware of which server the instance is running on. Fast failover without SQL relay.

WAL duplication for simple, reliable recovery

If a database problem occurs or if data is accidentally deleted, recovery of the WAL (Write-Ahead Log) can be performed with a single click.

Technical details

Item			Fujitsu Enterprise Postgres			
Basic architecture	Max. database capacity		Unlimited			
	Max. number of columns in table		1,600			
	Max. row length in table		1.6 TB			
	Max. number of rows in table		Unlimited			
	Max. number of indexes per table		Unlimited			
	Index storage format in table		B-tree	GiST/SP-GiST		
			hash	GIN		
			BRIN	VCI (Fujitsu's In-Memory Columnar Index)		
	Data types	Character types	CHARACTER	NCHAR		
			CHARACTER VARYING	NCHAR VARYING		
			text			
		Numeric types	bigint	integer	smallint	
			bigserial	numeric	smallserial	
			decimal	real	serial	double precision
		Datetime types	date	time	time with time zone	
			interval	timestamp	timestamp with time zone	
		Binary data types	bytea	Large object		
		XML	Yes			
		JSON	Yes			
	Character set	UNICODE	Yes			
	Multilingual support		Yes (149 locales)			
Security	Transparent data encryption		256-bit (compliant with PCI-DSS)			
	Data masking		Full masking / Partial masking / Regular expression masking			
	Dedicated audit log		Yes (compliant with PCI-DSS)			
	Key management for Transparent Data Encryption					
	Cloud-based key management					
	Confidentiality management					
Reliability/ High Availability	Standby		Yes			
	Split brain control		Yes			
	Instant failover		Yes			
	Transparent connection		Yes (ability to connect to a database server without knowing its stage)			
Performance	In-Memory Columnar Index		Yes (implemented via Fujitsu's Vertical Clustered Index)			
	High-speed data load		Yes			
Application development	SQL standard		Compliant with ANSI/ISO SQL:2016			
	Oracle-compatible SQL		Outer join operator			
			DUAL table			
			Functions (SUBSTR | NVL | DECODE)			
			Built-in packages (UTL_FILE | DBMS_OUTPUT | DBMS_SQL | DBMS_ALERT | DBMS_ASSERT | DBMS_PIPE | DBMS_RANDOM | DBMS_UTILITY | PLUNIT | PLVCHR | PLVDATE | PLVLEX | PLVSTR | PLVSUBST)			
	Language		C			
	Interface		ODBC	JDBC		
	Stored procedures / functions		Yes			
	Access control		Deadlock automatic detection			
			Query by other transactions during updates (Multiversion control)			
Support	High quality long-term support		Guaranteed			

Supported environments

	Server operating system	Client operating system
on IBM Power® (ppc64le)	• Red Hat Enterprise Linux 9.0 or later minor version • Red Hat Enterprise Linux 8.4 or later minor version • SUSE Linux Enterprise 15 SP3 or later minor version	• Red Hat Enterprise Linux 9.0 or later minor version • Red Hat Enterprise Linux 8.4 or later minor version • SUSE Linux Enterprise 15 SP3 or later minor version

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