

# Hardware Requirements

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**Hardware Requirements**

**Unicode ↔ non-Unicode SAP System**

**Will I need more  
hardware in a  
Unicode system than  
in a non-Unicode  
system?**

# Expected Hardware Requirements in UC - Overview

- Based on parallel benchmarking of Unicode / non-Unicode systems
- Note: The CPU/RAM figures are measured **average numbers** on SAP Application Servers and will be different for different transactions.
- Additional CPU/RAM hardware resource requirements on standalone DB servers must be provided by DB vendors.

## CPU

- +30%
- depending on existing scenario (MDMP, double-byte)

## RAM

- +50%
- Application Servers are based on UTF-16 internally

## Database size

- UTF-8\*: up to +10%
- UTF-16: +30..60%

\* 10% is the observed maximum for bigger systems (db size > 200 GB).

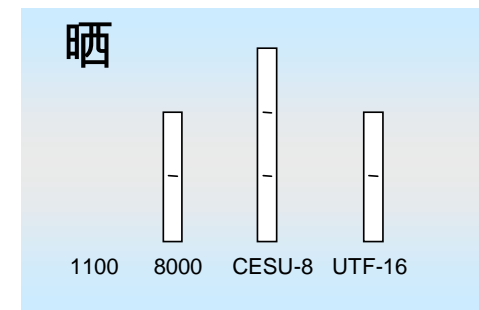
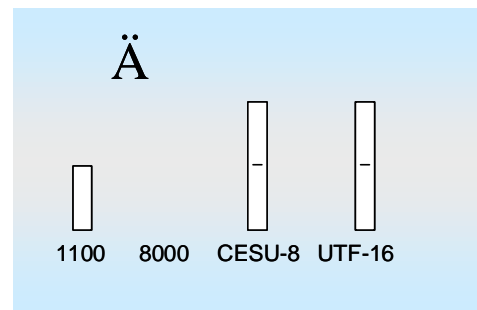
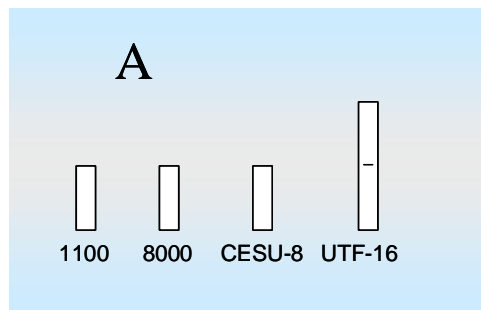
## Network Load

(SAP GUI for Windows)

- UTF-8
- almost no change due to efficient compression

## Database growth is depending on

- Database Unicode Encoding Scheme (e.g. CESU-8 vs. UTF-16)
- Database settings (page size, extent size)
- z/OS: Hardware compression (reduces size by approx. 40%)
- Language in use (e.g. Japanese vs. English: for double-byte characters UTF-16 requires less storage than UTF-8)
- Tables (LRAW fields are in some cases not converted while CHAR fields are)
- Application modules in use (ratios: tables/indices, text/binary data)
- Reorganization frequency
  - Unicode conversion includes a DB reorganization
  - DB growth is often compensated by shrinking due to reorganization (especially the indices)



## Expected Hardware Requirements in UC – Database

Database (Platform)	Encoding	Additional Storage Requirements
DB2 for AS/400	UTF-16	10...20%*
DB2 for z/OS	UTF-16	-20...10%**
DB2 /Universal Database for Unix/NT	UTF-8	-10%
MaxDB	UTF-16	40...60%
MS SQL	UTF-16	40...60%
Oracle	CESU-8	-10%

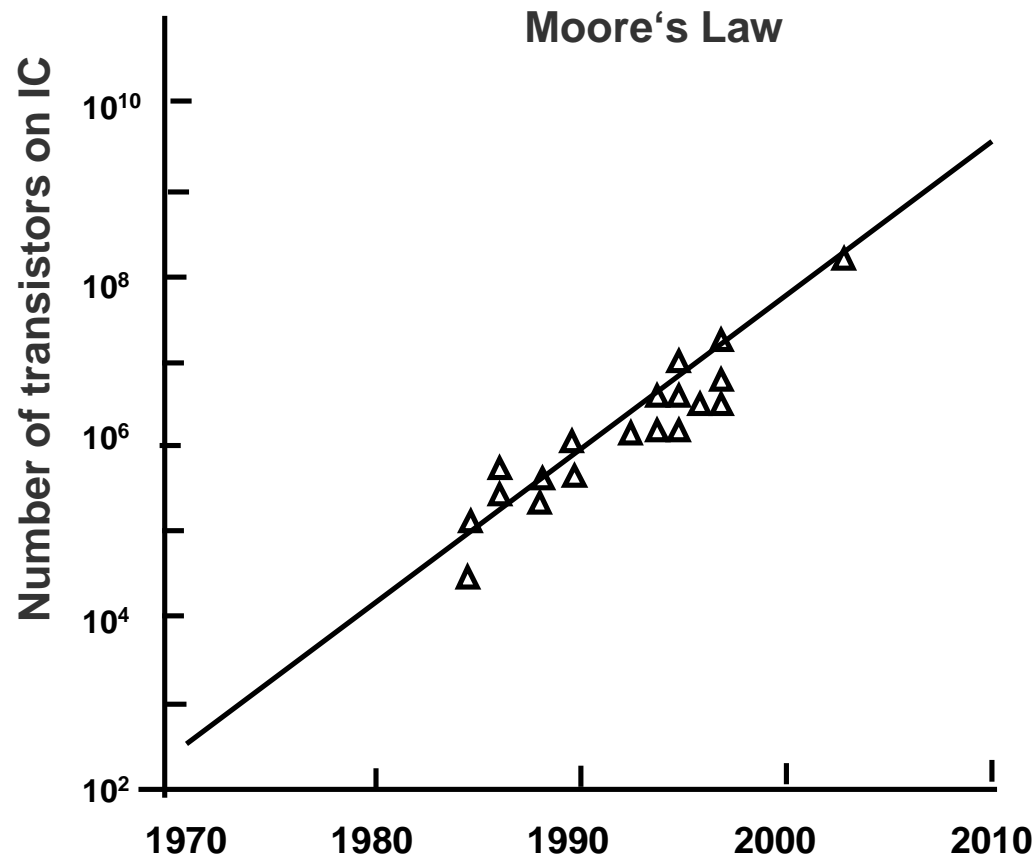
\*Small growth as biggest part of the ASCII based database is already Unicode

\*\*SAP Unicode installations on z/OS always use hardware compression which overcompensates the growth due to Unicode

Average database growth measured in customer systems (sum of all sizes)

- UTF-8 and CESU-8: -13% (more than 90% of the databases **have shrunk**)
- UTF-16: +30...+40%

Computer processing power at constant price doubles every 18 months.



When your hardware is **5 years** old, a new hardware available for the same price will be  $2^{((5*12)/18)} \sim$  **1000 %** more powerful than your old one.

How to determine hardware requirements

**More information about hardware sizing in SAP Systems are available at [www.service.sap.com/sizing](http://www.service.sap.com/sizing).**

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