

*Compression software
for Application of big capacity*

24 March 2006

FUJITSU DEVICE INC.

New Data Compression Library for Embedded System

RELC : Rapid Embedded Lossless data Compression

✧ **Super High Speed Decompression**

- About 2 times as quick as ZLIB(Free Software)

Merit of compression software use

-By compressing, Program size will be small and be able to use with effect Flash Memory space.

Your products can have many function.

Application

DTV,STB,DVD-Recorder,Printer(MFP) ,, etc.

Compression algorithm

The form was developed by Fujitsu laboratory.

This compression patent is clean (free from Stac, IBM, Unisys).

RELC is various CPU correspondences.

Program size (ROM)

Compress/Decompress about 3 Kbytes

Decompress about 600 Bytes

Compact size

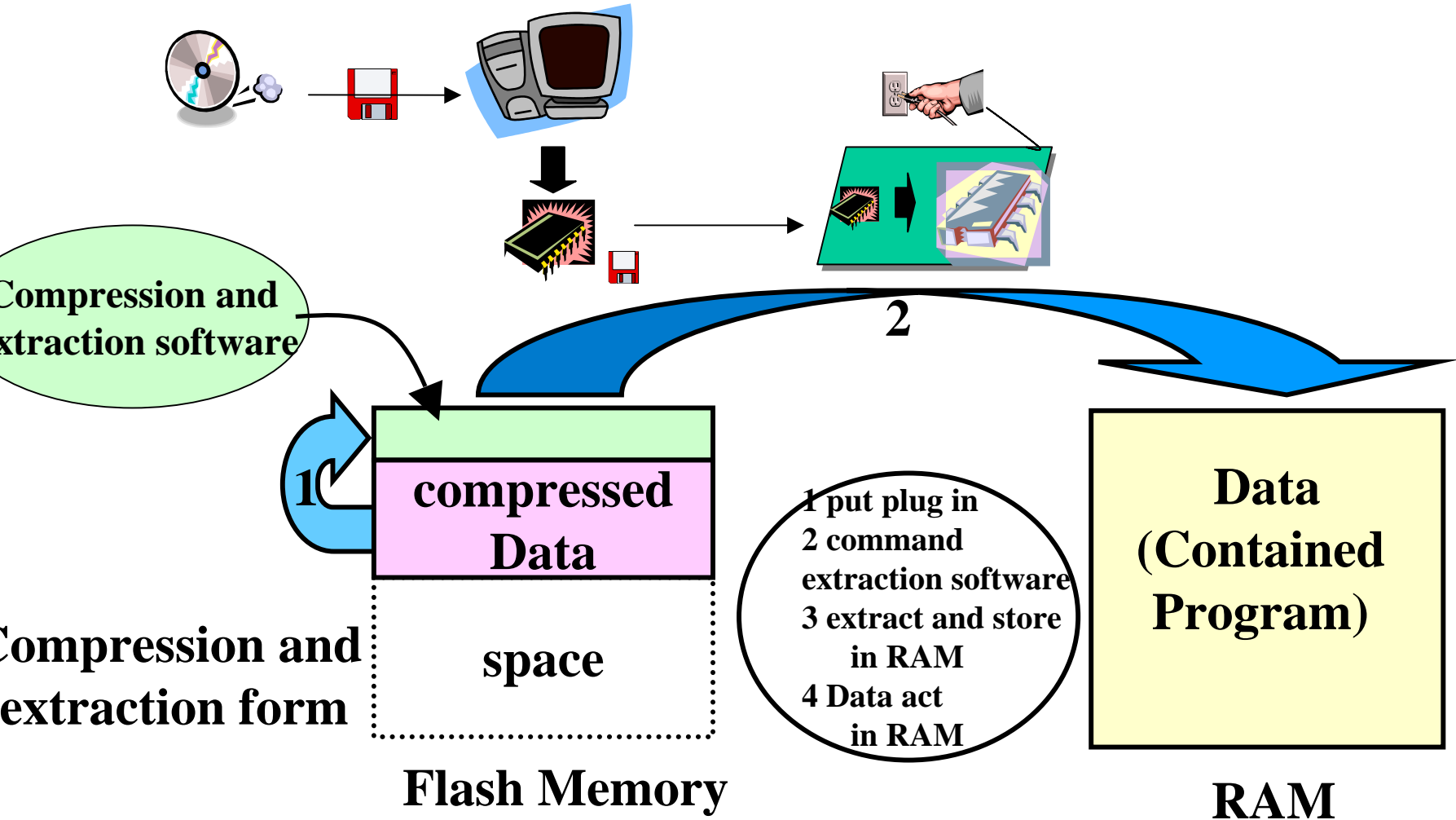
Work (RAM)

Compress/Decompress about 150KBytes

Decompress about 50 Bytes

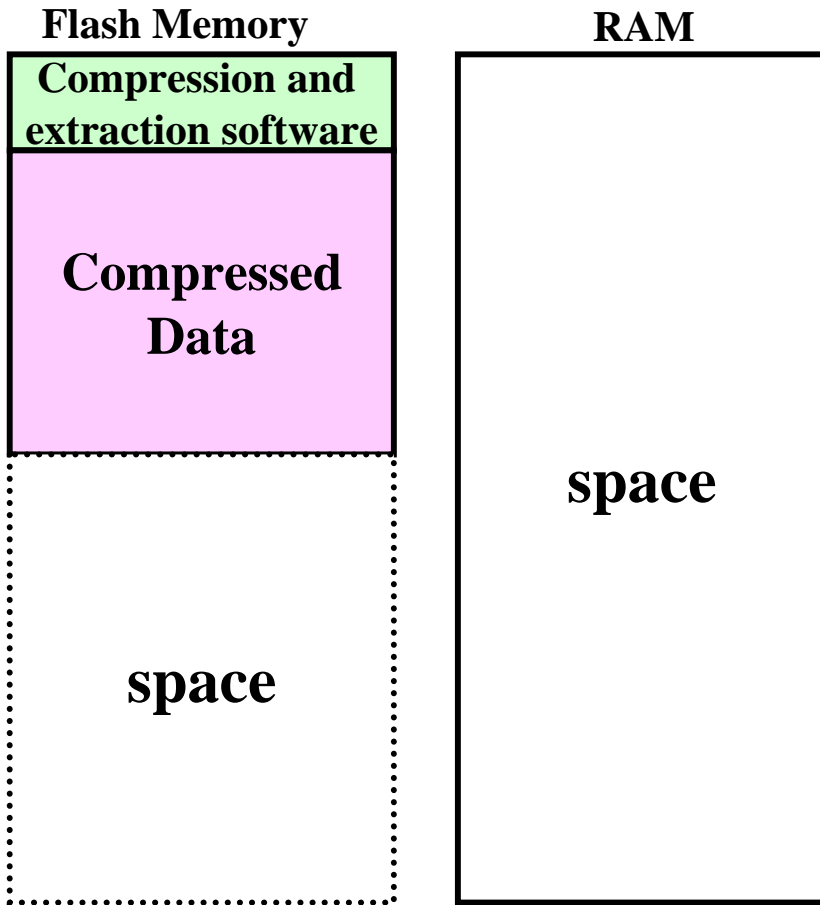
High Speed Decompression

RELC is useful for a high-speed start.



1) First situation

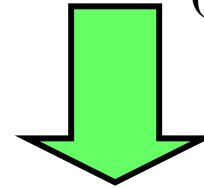
(before shipment)



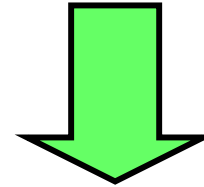
A) User turn on switch

(after shipment)

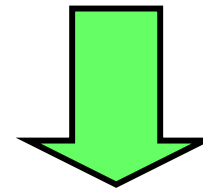
- put the plug in -



B) CPU command compression and extraction software



C) compression and extraction software extract Data and store in RAM



2) User

(after shipment)

Flash Memory

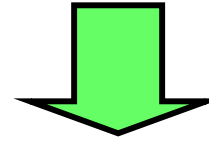
Compression and
extraction software

Compressed
Data

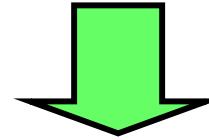
RAM

Extracted
Data
(Contained
program)

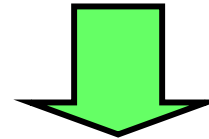
space



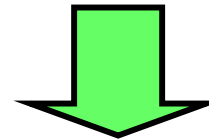
D) The Data act in RAM



**E) complete switch off (unplug)
Data in RAM is gone**



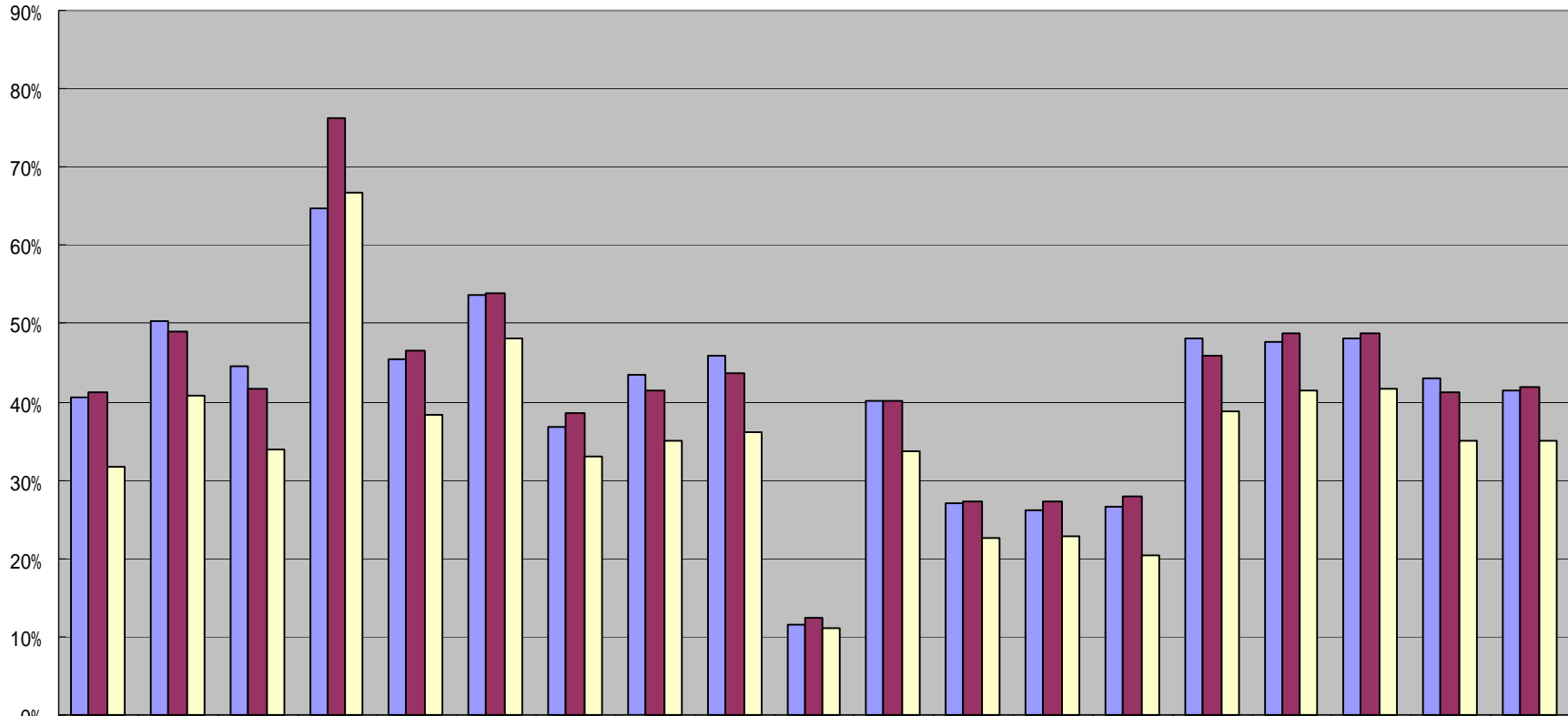
**F) When user put the plug in
again, Go to A).**



<attention>

When the product act by
standby electric current,
extracted data in RAM is
as you find it

Compression Rate (Compressed data/Original data)
 Data : Calgary Corpus
 ftp://ftp.cpsc.ucalgary.ca/pub/projects/text.compression.corpus
 ARM9TDMI[CoreClock: 10.0MHz, BusClock: 10.0MHz, 32bitBus]
 Read : 20ns[0 Wait] Write : 20ns[0 Wait]



	bib	book1	book2	geo	news	obj1	obj2	paper1	paper2	pic	prog	progl	progp	trans	paper3	paper4	paper5	paper6	Total
ESLC	40.61%	50.42%	44.54%	64.82%	45.51%	53.63%	36.91%	43.50%	45.78%	11.61%	40.17%	27.05%	26.25%	26.67%	47.99%	47.63%	48.13%	43.02%	41.35%
RELC	41.27%	48.90%	41.77%	76.36%	46.63%	53.79%	38.68%	41.42%	43.71%	12.43%	40.13%	27.37%	27.29%	27.93%	45.86%	48.66%	48.83%	41.25%	41.79%
ZLIB 1.2.1	31.67%	40.79%	33.83%	66.83%	38.40%	48.00%	33.02%	34.92%	36.21%	11.00%	33.70%	22.69%	22.75%	20.33%	38.86%	41.56%	41.66%	34.92%	35.06%

Compression Speed

Data : Calgary Corpus

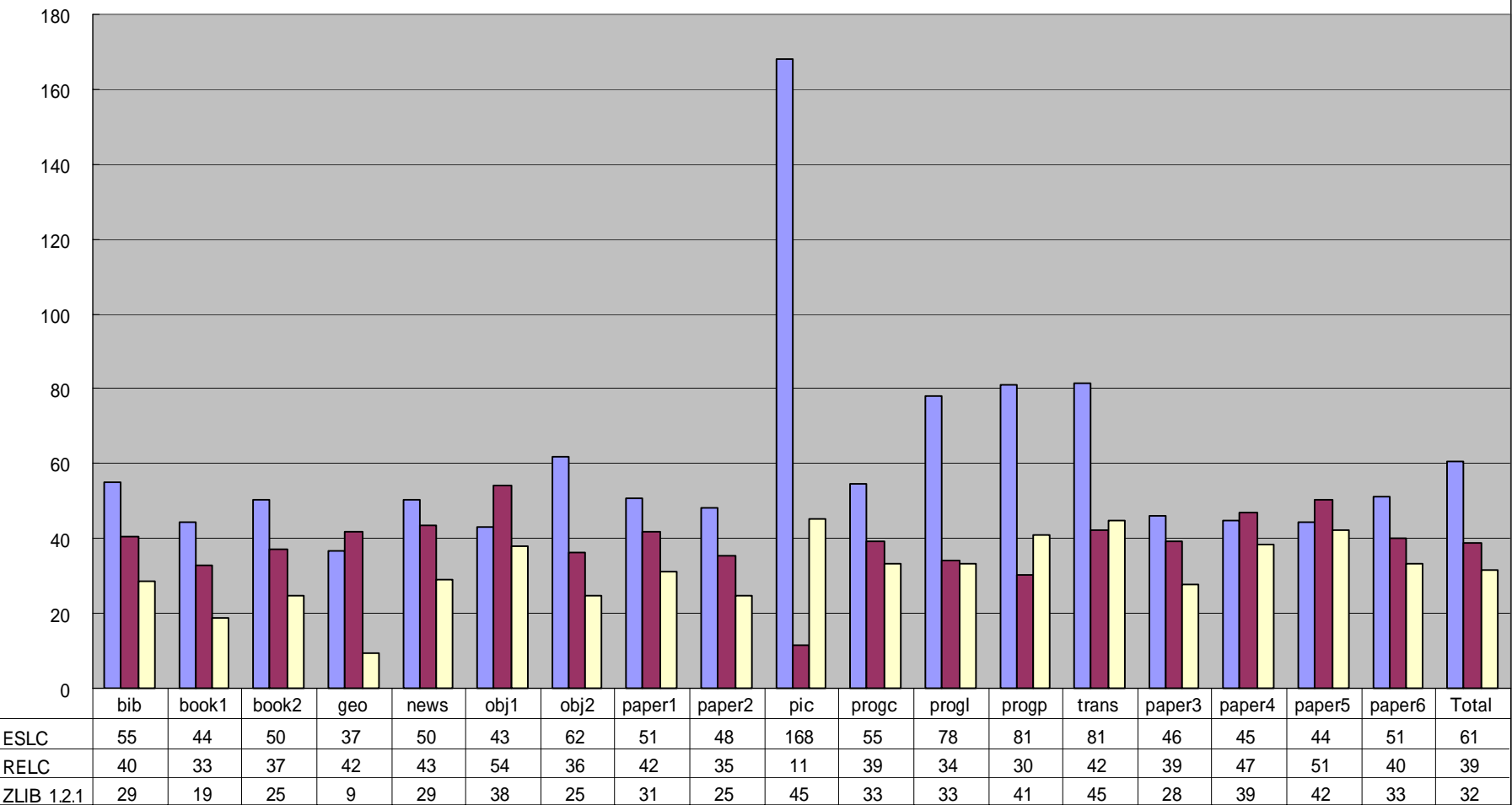
ftp://ftp.cpsc.ucalgary.ca/pub/projects/text.compression.corpus

ARM9TDMI [CoreClock : 10.0MHz, BusClock : 10.0MHz, 32bitBus]

Read : 20ns [0 Wait]

Write : 20ns [0 Wait]

KByte/Sec



RELC : Rapid Embedded Lossless data Compression (By FUJITSU DEVICES INC.)

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Compression software

Decompression Speed

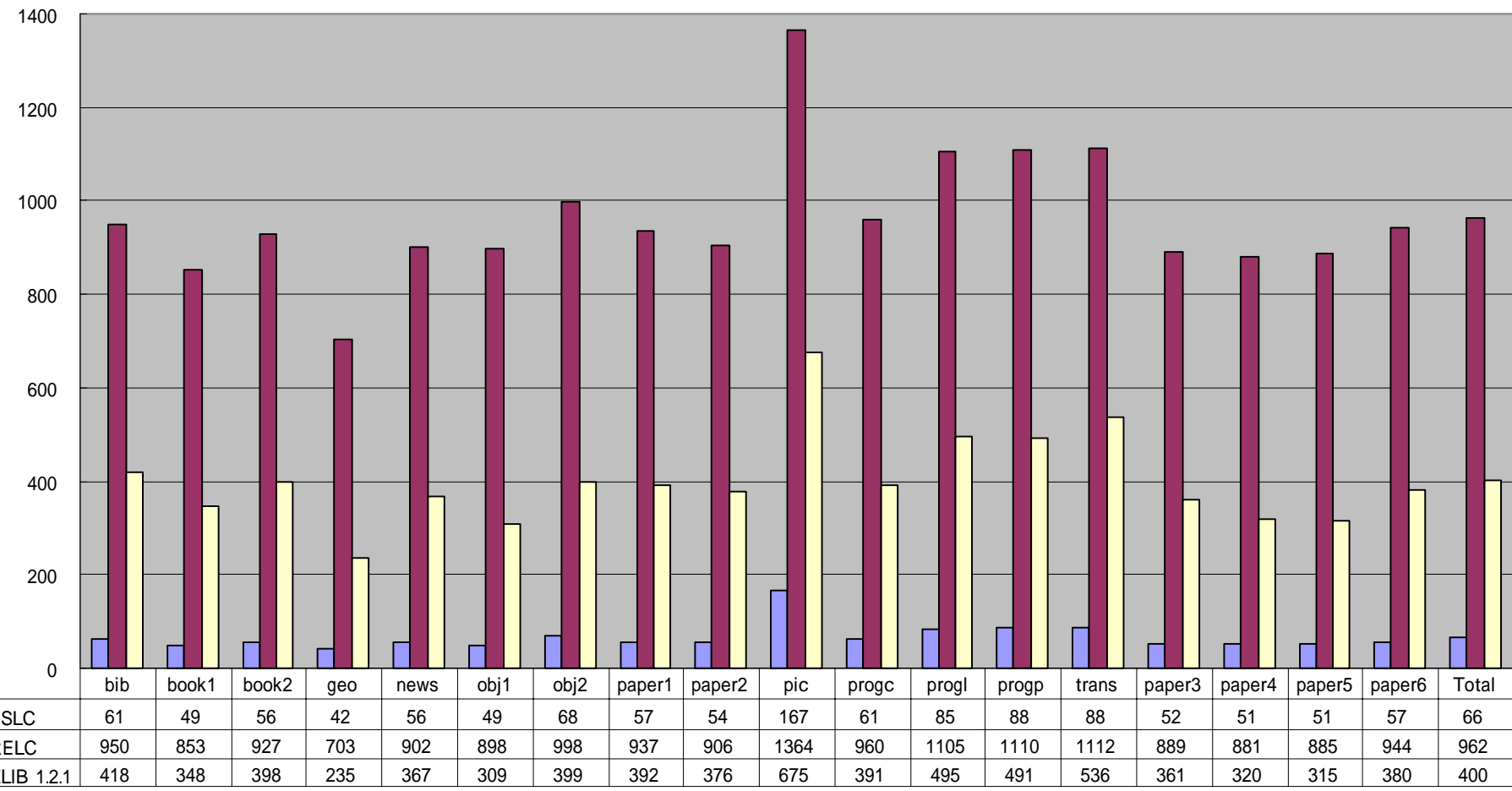
Data : Calgary Corpus

ftp://ftp.cpsc.ucalgary.ca/pub/projects/text.compression.corpus

ARM9TDMI [CoreClock : 10.0MHz, BusClock : 10.0MHz, 32bitBus]

Read : 20ns[0 Wait] Write : 20ns[0 Wait]


KByte/Sec



ZLIB : Free Software

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Compression software



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THE POSSIBILITIES ARE INFINITE