

AccessionIndex: TCD-SCSS-T.20121208.059

Accession Date:

Accession By:

Object name: Teradata DBC/1012 Database Machine

Vintage: c.1983

Synopsis: First commercial tree machine, SCSS's largest treasure (and one of its most significant). S/N: ????

Description:

When the Teradata DBC/1012 Database Machine, announced in 1983, it was the first commercially available machine with a tree-structured architecture. It was designed as a backend accelerator that would perform parallel execution of SQL queries on up to 1TB databases.

It used multiple nodes on dual-redundant proprietary *YNET* trees. Each of the nodes connected to both of the redundant tree networks. The networks supported sorting as well as broadcasting of queries. Rows of a relational table were distributed by hashing on the primary index. Within *clusters* of 2-16 nodes, replica rows of a relation were also maintained on different nodes for resilience. At the network leaves, up to 1024 *Access Module Processor* (AMP) nodes provided the parallelism. Each node had its own secondary storage. The nodes consisted of an Intel i80286 microprocessor, approximately 500MB of disk storage, and the file system and database software. Each processor cabinet of 8 nodes was 5 ft x 2ft and weighed 450lb, and had an even heavier (625lb) storage cabinet of the same size.

Software running on the host system handled users and transfer data. On the DBC/1012 a *Communication Processor* (COP) managed the interactions with the host. Teradata promoted a proprietary extension of SQL, the *Teradata Query Language* (TEQUEL).

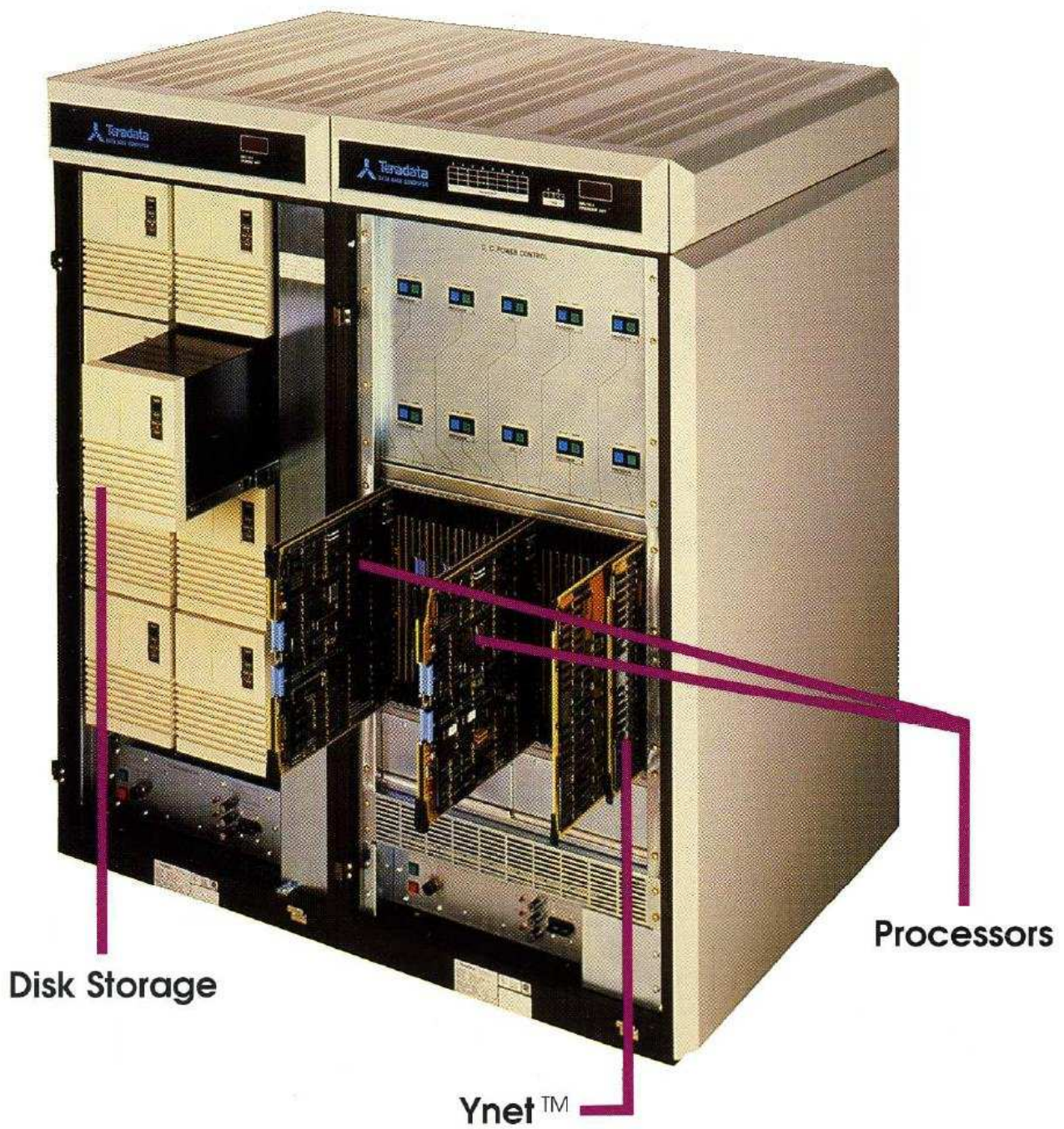
Institutional memory fades, so in later years this machine was a metal box with no obvious way to open the doors. In Jun-2015, Brian Brown (ex-CEO of Teradata Ireland), surmised that the doors installed downwards. After 15 minutes lifting, pulling, sliding, trying to reverse this, a sharp pull up and out from the lower right corner and presto it popped open (there is some kind of fierce latch to overcome). Then on opening the disk rack, a big surprise; someone was kind enough to stack all the manuals and software on top of the disk drives. Also there are few spare boards, not as yet identified, in their box.

Trivia: The '1012' in 'DBC/1012' denotes a max.database of 1TB == 10¹² bytes

Accession Index	Object with Identification
TCD-SCSS-T.20121208.059.01	Teradata DBC/1012 Database Machine Chassis. S/N: ????
TCD-SCSS-T.20121208.059.02	Teradata DBC/1012 spare COP board (1). (Communication Processor) Principal components: AMD P8031AH microcontroller Z0853004PSC serial communications controller (SCC) ROM A40-13600 HM62256LP-12 static RAM Markings: A50-1117-000, E/N 00058-001
TCD-SCSS-T.20121208.059.03	Teradata DBC/1012 spare COP board (2). (Communication Processor) Principal components: AMD P8031AH microcontroller Z0853004PSC serial communications controller (SCC) ROM A43-1360C HM62256LP-12 static RAM Markings: A50-1117-000, E/N 00165-008, V0A06100-001 Bull F1, Made in France
TCD-SCSS-T.20121208.059.04	
TCD-SCSS-T.20121208.059.05	
TCD-SCSS-T.20121208.059.06	

References

1. Wikipedia, *DBC 1012*, see:
https://en.wikipedia.org/wiki/DBC_1012
Last browsed to on 28-Apr-2016.
1. Wikipedia, *Teradata*, see:
<https://en.wikipedia.org/wiki/Teradata>
Last browsed to on 28-Apr-2016.



*Figure 1: Teradata DBC/1012 three-quarter view
From Teradata brochure*

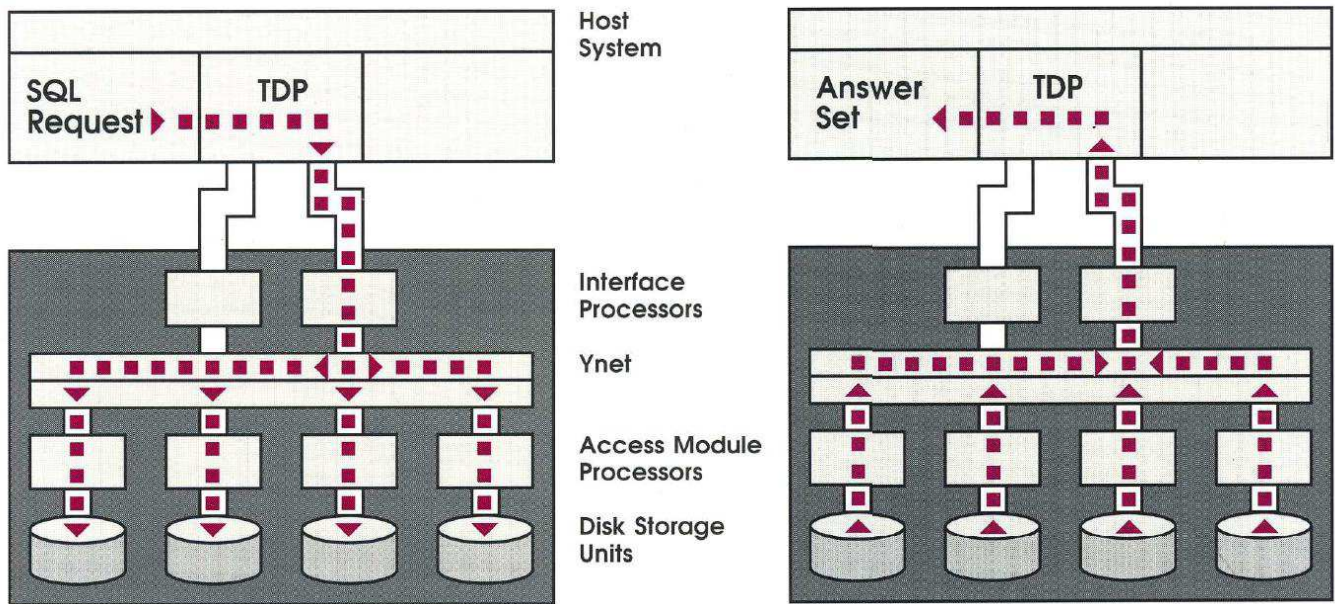


Figure 2: Teradata DBC/1012 SQL request and response
From Teradata brochure

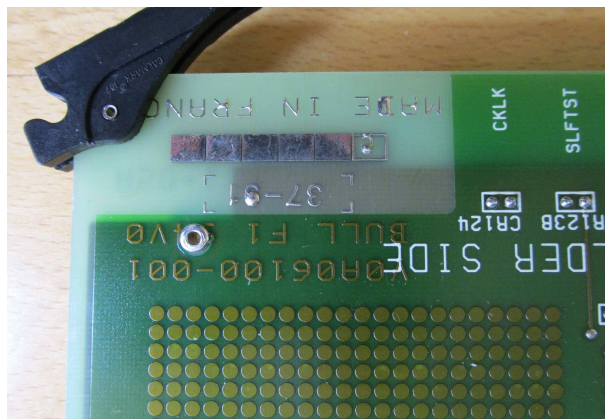
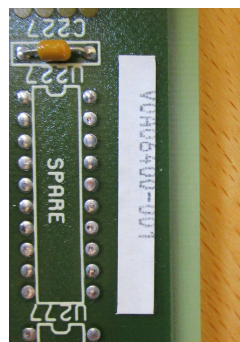
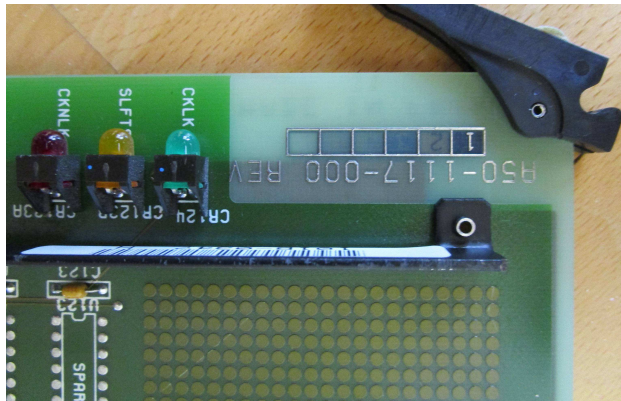
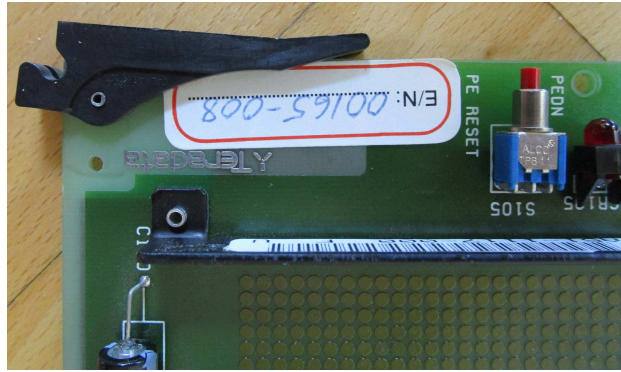


Figure 5: Teradata spare COP board (1), manufacturing labels, top and bottom

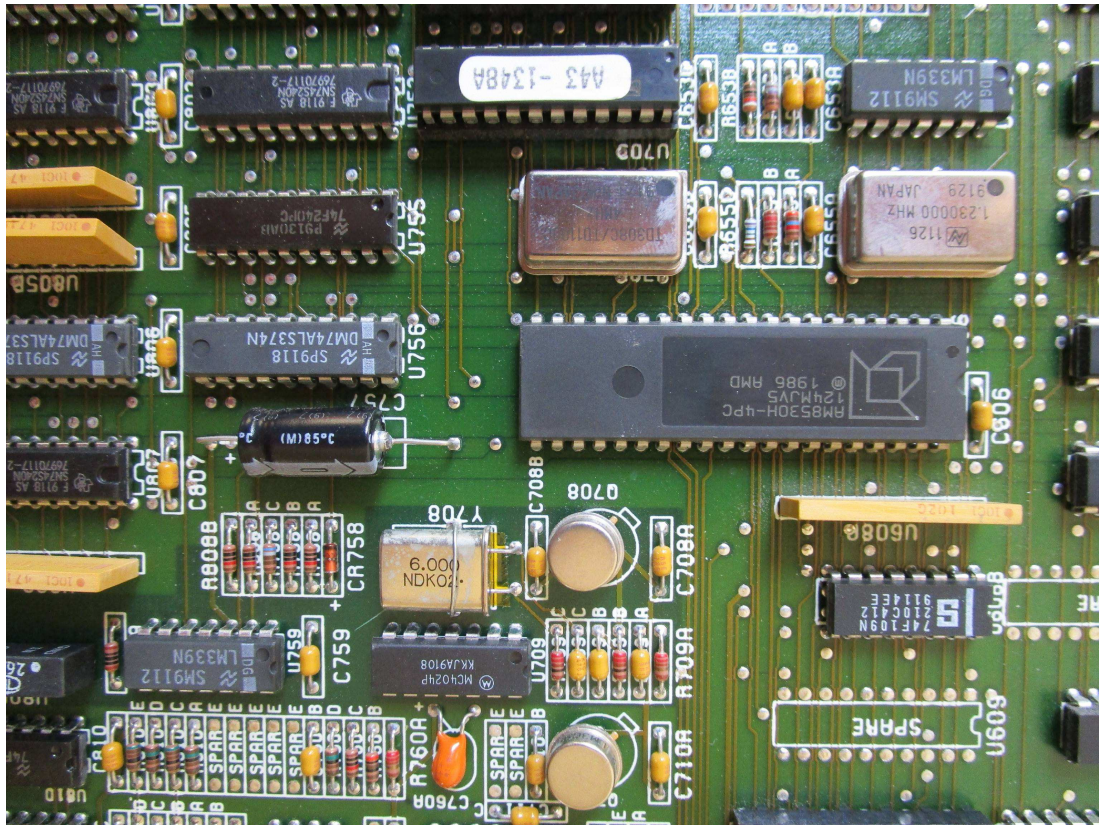


Figure 6: Teradata spare COP board (1), serial communications controller (SCC)

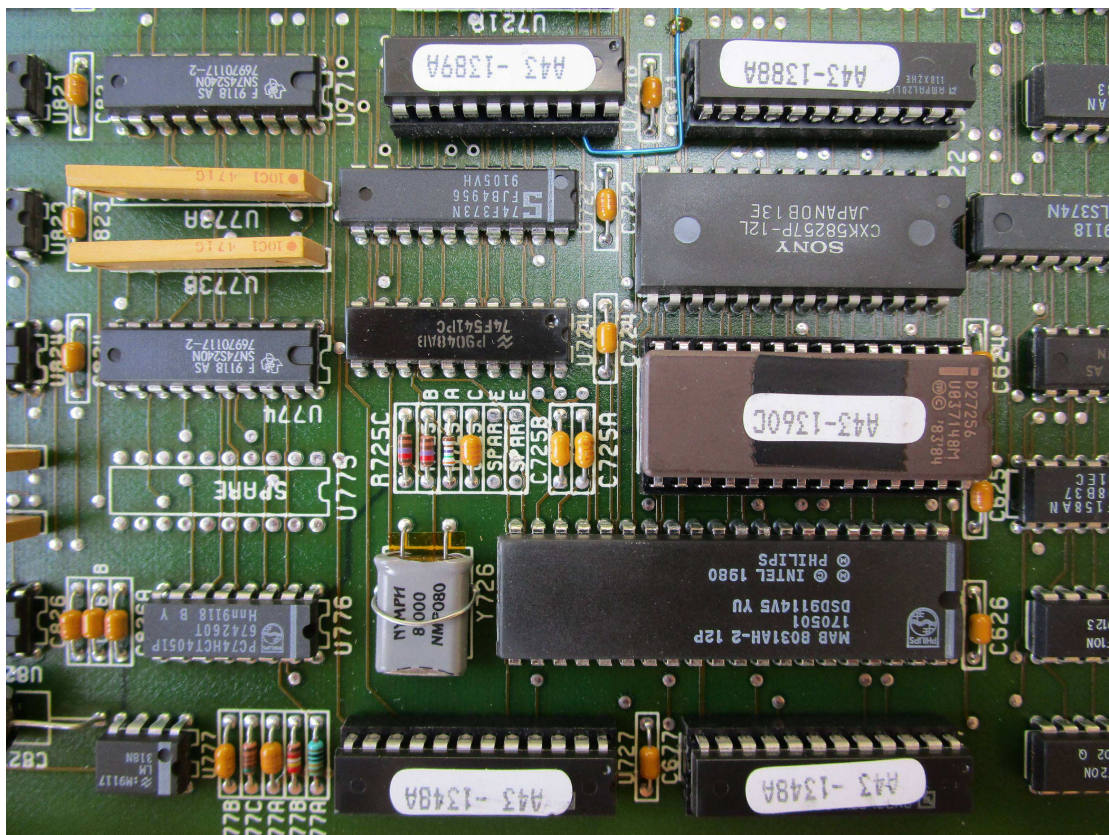


Figure 7: Teradata spare COP board (1), AMD 8031 microcontroller

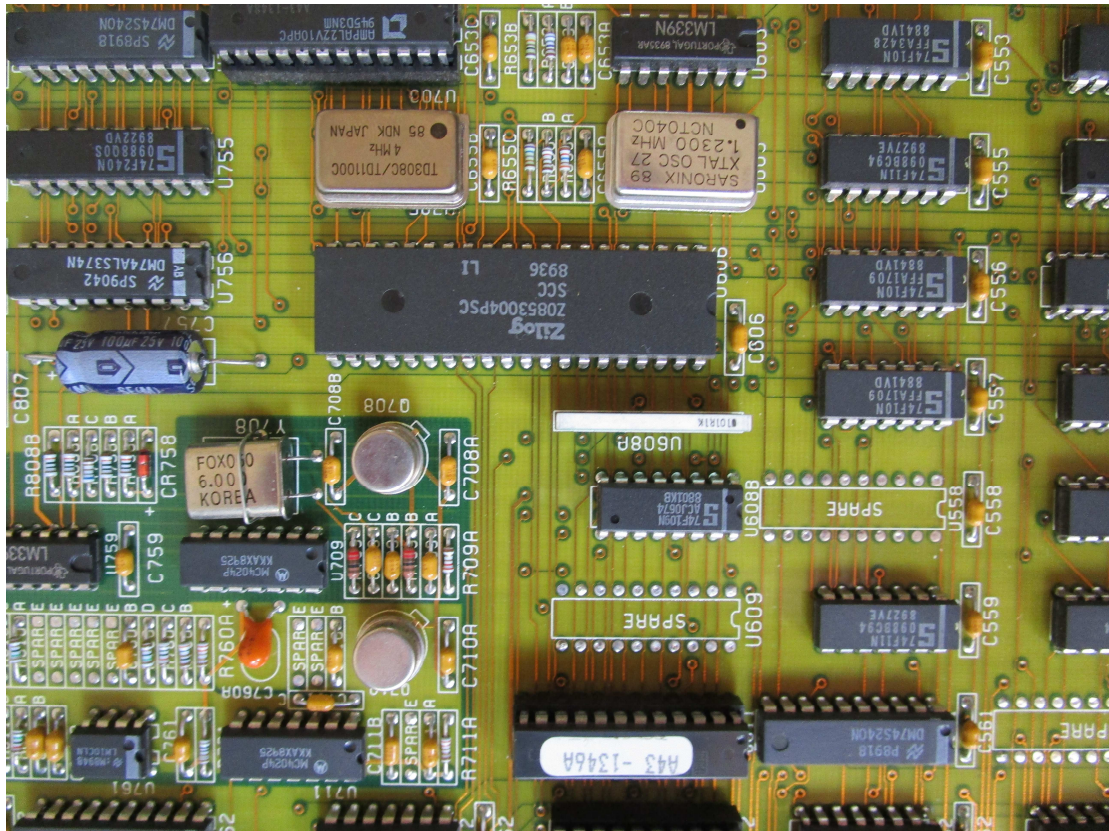


Figure 11: Teradata spare COP board (2), serial communications controller (SCC)

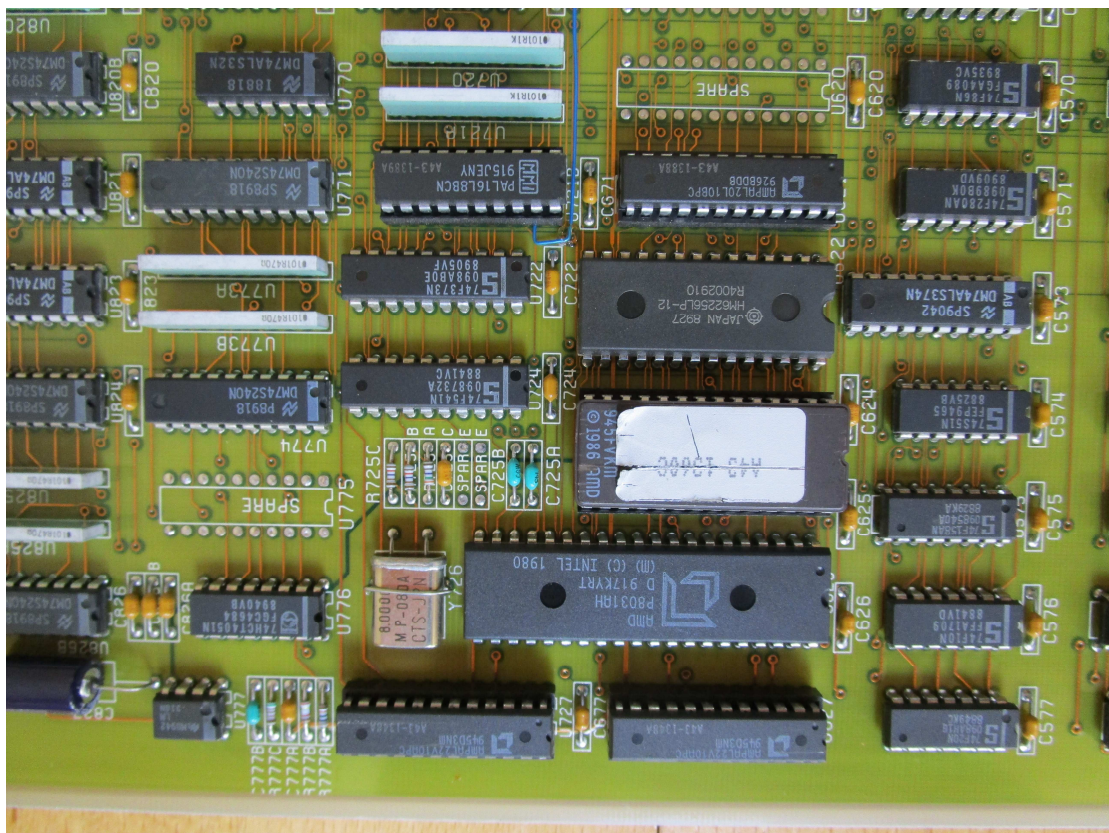


Figure 12: Teradata spare COP board (2), AMD 8031 microcontroller