

Deliveries of Ferranti Mark I and Mark I* (*Mark I Star*) computers.

Time-line and terminology: the early Manchester University and Ferranti computers.

The series of prototype computers developed at the University of Manchester by the team led by Professor F C Williams, and first working between June 1948 and the end of 1949, were all loosely called the *Manchester Mark I*. The Ferranti Mark I was the re-engineered production version of the last of these University machines.

Here's the timeline for related early developments at the University and at Ferranti Ltd., with the various names used for each computer.

Date	Event	Computer	Also known as
21 st June 1948	First runs a program	Baby	Small Scale Experimental Machine (SSEM).
April 1949	First runs a program	Manchester Mark I (<i>significantly enhanced SSEM but with manual I/O & drum transfers</i>).	MADM
October 1949	First runs a program	Manchester Mark I (<i>I/O & drum transfers under full program control</i>)	MADM
12 th Feb. 1951	Delivered to the University of Manchester	First production Ferranti Mark I	Mark II; MUC; Manchester Electronic Computer
Sept. 1953	Delivered to GCHQ, Cheltenham	First production Ferranti Mark I* (<i>Modified instruction set</i>)	(See below).

Nine Mark I and Mark I* computers were built by Ferranti Ltd., as shown in the Table below.

Ferranti's DC number & model	Customer, site	Also known as	Approx. delivery date	Approx. final switch-off
DC1 Mk I	Manchester University	(See above)	Feb 1951	Dec. 1958
DC2 Mk I	Toronto University	FERUT	May 1952	End of 1966
DC3 Mk I*	GCHQ, Cheltenham	CLEOPATRA	Sept 1953	1959/1964
DC6 Mk I*	Shell Labs., Amsterdam	MIRACLE	June 1954	Dec. 1961
DC5 Mk I*	ARDE, Fort Halstead, Kent	AMOS	July 1954	Jan. 1967
DC4 Mk I*	INAC, Rome	FINAC	Jan 1955	1966
DC7 Mk I*	AWRE, Aldermaston.	-	Early 1955	1959
DC8 Mk I*	A V Roe Ltd., Chadderton	-	Early 1956	1965
DC9 Mk I*	Armstrong Siddeley, Ansty	-	Oct 1957	1964

The detailed story of all of these installations is given in: *Early computing in Britain: Ferranti Ltd. and government funding, 1948 – 1958*. Simon Lavington. Published by Springer, 2011.

The Mark I* (*Mark One Star*), was a revised version of the Ferranti Mark I, developed by a Ferranti team led by John Bennett. The main change was to eliminate replicated and redundant instructions from the instruction set, focussing on functionality that would be important to writers of scientific and engineering applications. This enabled the number of function digits (op code) in the instruction word to be reduced from six to five bits. 5-bit op codes clearly made sense with the commonly-used five-track teleprinter input/output equipment of the period. Other differences between the Mark I and the Mark I* are explained in section F1/X3.

To complete the story, a Manchester University team led by Tom Kilburn had, by 1951, begun working on the design of a new computer, known as *Meg* or *Manchester Mark II*. The production version of *Meg* was later to be marketed as the Ferranti Mercury. (See references 26 & 27 in section F1X5).

In this section we are only concerned with the nine Mark I/Mark I* computers manufactured and sold by Ferranti Ltd. For a history of this company, see reference 23 in section F1X5.

Deliveries.

Information on deliveries is taken from: *The Ferranti Computer Department – an informal history. B B Swann, 1975. Typescript for private circulation only.* See the National Archive for the History of Computing, catalogue number NAHC/FER/C30. Swann's information has been supplemented by reference to source documents specific to each site, as given in reference 24 in section F1X5. All of the computers in the Table above were applied almost exclusively to applications in engineering, science and mathematics.

Brief notes on the nine delivered computers, taken from reference 24 in section X1F5.

1. The first production Ferranti Mark I was working on the factory floor by the end of 1950 and was moved to Manchester University in February 1951 – thereby claiming to be the first commercially-available computer to have been delivered. The reliability during the first few months was not good, though it was giving reasonable service by the Inaugural Conference (July 9th – 12th 1951). This computer was finally switched off in December 1958.
2. Toronto's Ferranti Mark I computer was given the local name FERUT – Ferranti University of Toronto. It was working just in time for the ACM Conference held at the University in September 1952. In 1958 FERUT was moved to the National Research Council of Canada's Mechanical Engineering Section (in the Structures Laboratory) at Ottawa. It is believed to have been finally switched off towards the end of 1966.
3. GCHQ's Mark I* was working reasonably at Oakley, Cheltenham, by May 1954. However, the whole installation called CLEOPATRA (which included various add-ons) was not giving satisfactory service until the spring of 1955. The main Mark I* computer was sold by GCHQ to a scrap dealer in 1958/9, who then sold it on intact to Armstrong

Siddeley Aero Engines, Ansty, Coventry who re-installed it in 1959. This computer was finally switched off in 1964.

4. Shell's Mark I* computer, called MIRACLE, passed its Acceptance Tests in November 1954. It is believed to have been finally switched off in December 1961.

5. Fort Halstead's Mark I* computer, called AMOS, passed its Acceptance Tests in the autumn of 1954. AMOS was finally switched off in January 1967.

6. The Mark I* at the Istituto Nazionale per le Applicazioni Calcolo (INAC) in Rome was called FINAC. It passed its Acceptance Tests in June 1955. FINAC was officially inaugurated on December 14th 1955 by the Italian Head of State, President Giovanni Gronchi. The computer was finally switched off some time in 1966.

7. The Mark I* at AWRE Aldermaston passed its Acceptance Tests in March 1955. It was being phased out of operation during 1959, whilst work was gradually moved to other computers at Aldermaston. The exact date during 1959 (or 1960?) on which the Mark I* was finally switched off is not known.

8. Avro's Mark I* at Chadderton, just north of Manchester, passed its Acceptance Tests in May 1956. It was finally switched off some time 1965. In 1966 the computer was passed (less power supplies, etc.) to the Museum of Science and Industry in Leicester where it gradually decayed in inappropriate storage. The main logic and memory sections were distributed to other museums in about 1973. Two units may be seen today at The National Museum of Computing, Bletchley Park.

9. The Mark I* at Armstrong Siddeley Aero Engines, Ansty, near Coventry passed its Acceptance Tests in December 1957. It was finally switched off in 1964.