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TITLE : COMPUTER SYSTEM REQUIREMENTS FOR SAX SCIENTIFIC DATA ANALYSIS

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Document Hystory

Rev. 0 of this document was issued on September 1987 by the SAX Coordination Group and addressed to the PSN/CNR in view of the procurement of the computer resources for the establishment of the four Local Centres located at the respective Italian Payload Institutes.

This Rev. 1 has been prepared by:

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with specific inputs supplied by F.Frontera, M.Morini and J.Heise.

Information related to the Local Centres has been updated and the text of Rev. 0 concerning the SAX Mission description and the Scientific Data Centre has been removed, as for these two last topics this document now refers to R.D.1 and R.D.4 respectively.

The complete list of the major changes which have been made in Rev. 1 with reference to Rev.0 now follows:

- Chapter 2 (Mission description) of Rev. 0 has been removed.
- Chapter 2 of Rev. 1 includes with minimal changes the original chapter 3 of Rev. 0, but all Scientific Data Centre related sections (mainly 3.2) and section 2.2 ("Need for a dedicated computer system") have been removed.
- Chapter 3 of Rev. 1 includes with minimal changes the original chapter 4 of Rev. 0, but all Scientific Data Centre related sections have been removed.
- Chapter 5 of Rev. 0 ("Financial Budget") has been removed and replaced by Chapter 4 of Rev. 1 (which reports the starting configuration of the Local Centres).
- Appendix D of Rev. 0 ("References") has been removed and replaced by Appendix D of Rev. 1 (which reports the Dutch Local Centre Configuration).

A vertical bar on the left margin marks the text lines which have been modified or included in Rev. 1 with respect to Rev.0.

Document for which no computer readable source exists any longer

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1 INTRODUCTION

1.1 Scenario

The overall framework of the Ground System for the SAX satellite mission is depicted in Fig.1.1.

The SAX Ground Segment, as decribed in R.D.2, consists of a Ground Station, an Operation Control Centre and a data link between the two. The OCC is linked to a central facility, the Scientific Data Centre (SDC).

The SDC functional configuration will be subject of the Bridging Phase study of Telespazio for what concerns the area including the Mission Support Components (SDC/MSC).

The area of the SDC including the Scientific Analysis Components (SDC/SAC) is currently under study by the SAX Consortium Data Analysis Working Group.
Activities in this area are strictly related with the work to be carried out at each Payload Institute of the SAX Consortium starting before launch with the data analysis for development, test and calibration of single detectors and subsystems, continuing during the operational mission and afterwards with scientific observation data analysis.
As this kind of work forbids the use of centralized computer system and puts heavy demands on local computer resources, the procurement of dedicated computer resources at each Italian Payload Institute has been planned and it is now in progress.

These resources will be configured as Local Centre Subsystems and will be connected via normal academic network to the Science Data Centre to form the SAX Computer System (SCS).
Also the computer facilities available at the Dutch Payload Institute (see Annex D) will have access to the SDC via normal academic network.

1.2 Purpose And Scope Of The Document

The purpose of the document is to present the computer resources which are being procured by the Agenzia Spaziale Nazionale (ASI) to the Italian Payload Institutes, where the four Local Centre Subsystem (LCS) will be located, namely:

- Istituto di Fisica Cosmica e Tecnologie Relative, I.F.C.T.R./C.N.R. - Milano
- Istituto per le Tecnologie e lo Studio delle Radiazioni Extraterrestri, I.Te.S.R.E./C.N.R. - Bologna
- Istituto di Astrofisica Spaziale, I.A.S./C.N.R. - Frascati

. Istituto di Astrofisica Spaziale, I.A.S./C.N.R. - Frascati

. Istituto di Fisica Cosmica e di Applicazioni dell' Informatica, I.F.C.A.I./C.N.R. - Palermo

On the basis of the requirements related to the Preoperational Phase, the Agenzia Spaziale Italiana is procuring at each Local Centre Subsystem the following starting configuration:

(a) Main Computer: VAX 8250 with:

- CPU, FPA, 16 MB RAM
- Ethernet channel adapter
- DESTA-AA thin wire ethernet adapter
- DMB32-LM: 8 RS232 lines, 1 parallel line
- DSA disk controller

(b) System Console: LA100-BB

(c) System Printer: LN03-AI, graphics laser printer, 8 page/min.

(d) Disk Subsystem: RA82-AD, 622 MB magnetic disk

(e) Magnetic Tape Subsystem:

TU81E-BB (1 drive unit, 1600/6250 BPI).

(f) Interactive Graphic Terminals with hardcopy:

4 VT340-AI (16 colors interactive graphics terminal) and
4 LA75-AI (250 cps. printer)

(g) System S/W:

DEC-VMS operating system; VAX Fortran compiler; DEC DBMS products: VAX RDB/VMS, VAX CDD and VAX DATATRIEVE

The pictorial device will be procured as soon as one of the following possibilities shall be selected:

- graphics pictorial display (VDS Eidobrain or other)
- VDS graphics pictorial workstation
- DEC graphics pictorial workstation.

Further upgrade of the CPU, mass storage and graphics devices will be provided in order to fulfill the requirements presented in the previous chapter for the final configuration.