

TITLE OF THE PAPER : "PICTRAL a MATRA line of
image processing terminals
for large size imagery".
Author : SELIGMANN
Institution : MATRA
Country : FRANCE
Comission number : II

With the new generation of large, high resolution satellite images such as LANDSAT D and SPOT, a new range of image processing systems is needed.

The solution proposed by MATRA is the PICTRAL line of products which provides large virtual memory and high resolution display.

Main PICTRAL features :

User oriented dialogue

PICTRAL makes the interactive dialogue easier. Step by step guidance enables non computer specialists to operate with a direct access to PICTRAL SOFT man functions and PICTRAL SOFT macro files management software.

New functions

With PICTRAL, the field of image processing is widened at the highest performance level :

- large roam
- stereoscopy
- more graphic capabilities : color graphics connected to the image and following it (zooming, translations, etc..) as well as independant graphics (texts, charts for instance).

Powerful local processing capability

PICTRAL is controlled by a high speed Motorola 68000 microprocessor. Its memory may be extended by disk. This enables users to work on a stand-alone mode and to implement new functions using a high level language.

PICTRAL SOFT pan

Panning view of 9000 x 9000 images. In addition to the classic roam function using 4 refresh memories to view parts of a double size image (1024² for the 512 standard, 2048² for the 1024 standard). PICTRAL SOFT pan does more with access to 9000² images and to multispectral images as well. PICTRAL SOFT pan works with 81000 KB image memory stored on disks.

PICTRAL NET

Connected to an ETHERNET standard network, PICTRAL will exchange data with any equipment on the network at a very high rate, thanks to the image oriented transfer protocol. PICTRAL NET, a MATRA product (this communication software is being registered by Xerox).

High resolution

At first requested for military and medical applications, the 1024 standard is chosen in new fields for its sharp interpretation capability and better comfort.

Large graphic capabilities

4 graphic planes independent of the image display and processing. 2 graphic planes combined with each image memory plane ; their colour may be chosen among 256^3 colours. 4 different video processings can be performed at once in one image using those 2 graphic planes.

Dual screen extension

PICTRAL 1000 dual screen can display on one screen the full original undersampled view (in a size of up to 9000 x 9000 pixels) and on the other a full definition 1000 x 1000 pixels window taken out of the original view.

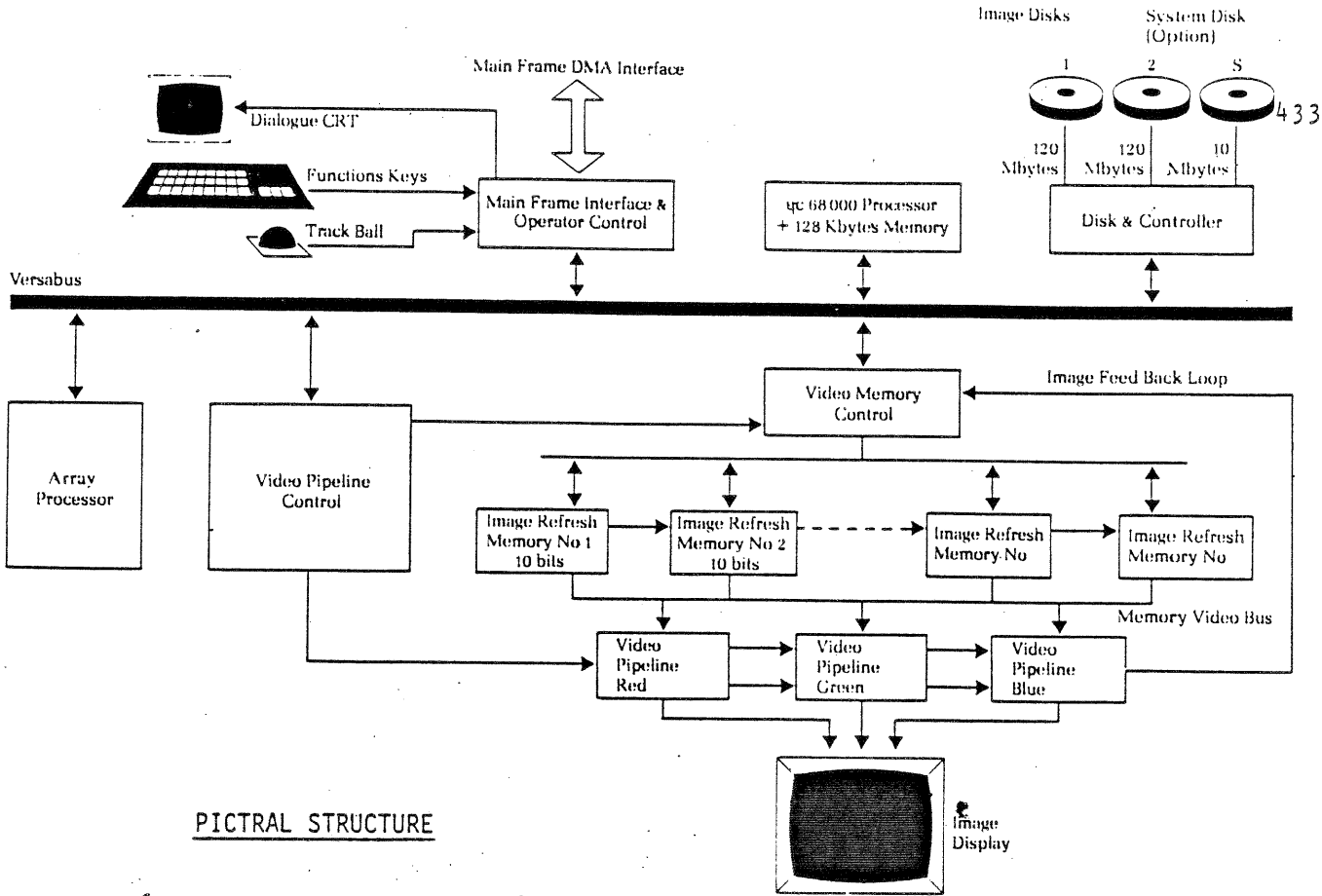
Programmed array processor

Additional boards on the bus speed up specific complex functions generally processed by the host computer (FFT, convolution, geometric transformation...). New functions may be implemented by specific programming. With PICTRAL, it is possible to simulate a whole processing file in a stand-alone mode.

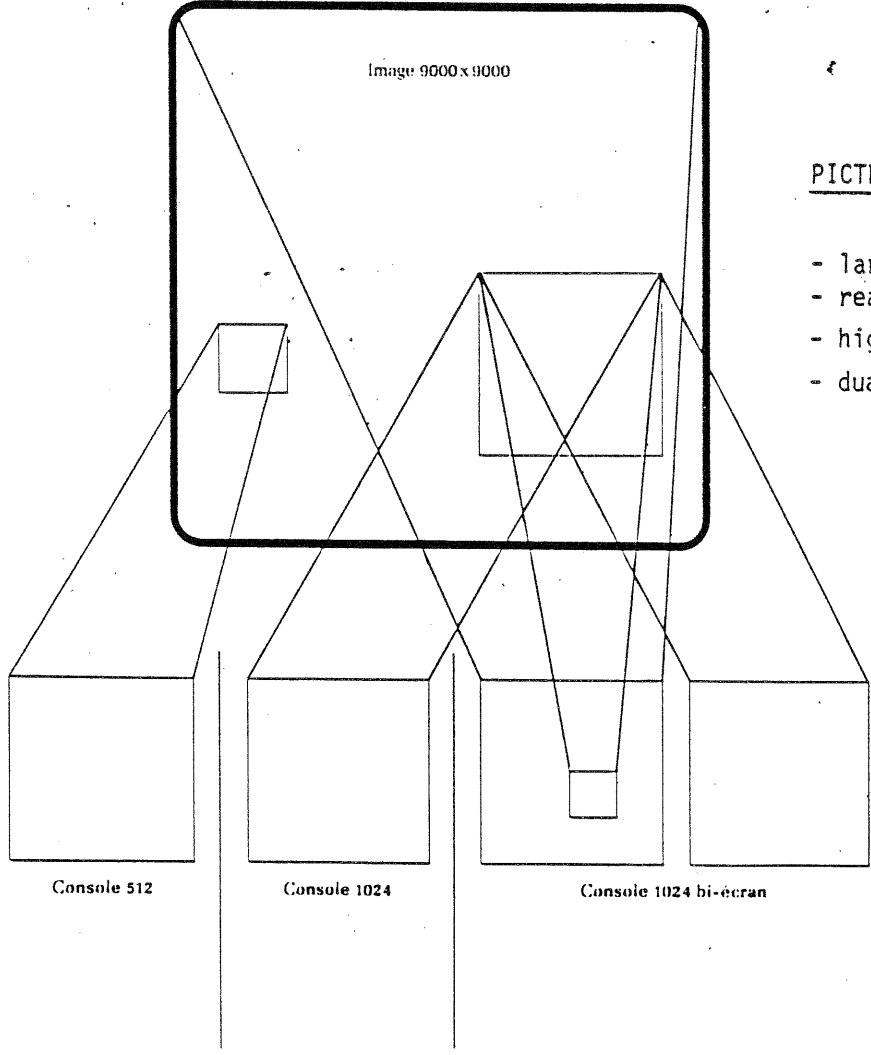
PICTRAL family

PICTRAL family is an extended line of image processing systems. Main configurations are :

- PICTRAL 500 : one to 8 memory planes 512 x 512 x 10 bits.
- PICTRAL 1000 : one to 4 memory planes 1024 x 1024 x 10 bits
- PICTRAL 1000 dual screen :
 - . one to 3 memory planes in the main display processor.
 - . one memory plane in the second display processor.
- PICTRAL SOFT : large range of software packages :
 - . MAN) = image manipulation and enhancement
 - OPER)
 - . MACRO = function files monitoring
 - . PROG = software development package
- PICTRAL NET : local network ETHERNET (r) standard based.
- PICTRAL PAN : large roam function up to 9000 x 9000 pixels.



PICTRAL STRUCTURE



PICTRAL PAN functions :

- large images
- real colour capability
- high speed
- dual screen

PICTRAL SOFT

List of main display functions running in a stand-alone mode with PICTRAL

- . Alphanumeric plane erasure
- . Alternate display
- . Camera input
- . Catalogue
- . Colour level
- . Colour rotation
- . Convolution
- . Current graphic plan
- . Cursor
- . Division
- . Drawing
- . Dynamic
- . Exponential
- . Graphic annotation
- . Graphic colour
- . Graphic display
- . Graphic erasure
- . Grey scale
- . Grid
- . Histogram
- . Histogram equalization
- . Image catalogue management
- . Image display
- . Image deletion
- . Image zoom
- . Intensity profile
- . Interpolated zoom
- . Linear scale in portions
- . Locking
- . Logarithm
- . Logic management of disks images
- . Multiplication
- . Palette
- . Panning window
- . Points file
- . Polygon plot
- . Pseudo-colour
- . Ratio
- . Resident image creation
- . Spectral signature
- . Split screen
- . Time animation
- . Transfer function display
- . Transfer function on image fraction
- . Transfer function programming
- . Unlocking
- . Weighted combination
- . Window effect mono/multi-channel, image/graphic

Associated to those functions, MATRA can provide a large remote sensing software package* (some function including classification, have been provided by I.G.N. France).

TELEDETECTION DES RESSOURCES TERRESTRES / REMOTE SENSING OF EARTH RESOURCES

