

Fig.4 - Block Diagram of the HRPT Decoder

### Frame Overview.

The table on page 42 gives an overview of an HRPT frame. Each frame contains a single picture line consisting of 2048 pixels. Since there are *five* channels, at least  $6 + 5 \times 2048 = 10246$  words are needed in one frame. Additional words (844) add an ID-code for the satellite, time, calibration data etc. bringing the total number of words in a HRPT frame to 11090. (110900 bits).

### The Decoder

A block diagram of the HRPT decoder is shown in **Fig.4**. The input is the split-phase signal, coming from the receiver. This signal should be on TTL-level. The block "clock extract" recovers the clock from the input signal. It contains a PLL to generate a stable 1.3 MHz clock. This block also samples the input signal. The output data are still split-phase, but are now aligned with the 1.3MHz clock (**Fig.5**)

Both sampled data and recovered clock go to the data extractor where the split-phase signal is translated into a normal bit stream. (Manchester decoding.) The bitstream has a speed of 665 kb/s, and the related clock is generated by means of a simple divide-by-2. (**Fig.5**)

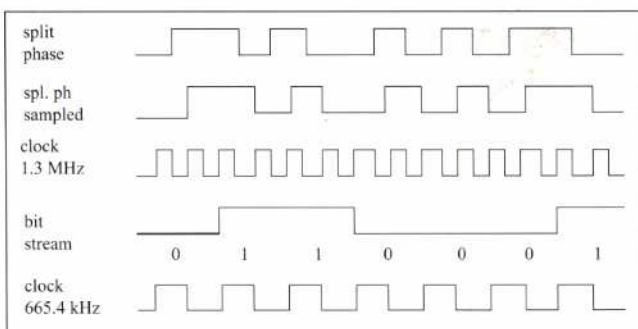


Fig.5 - Signals in the HRPT Decoder