Bits Per Orbital Period

- **Mimmi**
  Mimmi takes pictures every minute.
  Every measurement series will give 5 x106 samples, each with 12 bits resolution.
  Total Amount of bits: 3'600'000'000 bits

- **Musse**
  In the worst case, Musse's modes are changed once per day and each mode needs 128 bytes of data from ground.
  The raw data from the instrument consists of 4 measurements sampled at a rate of 12 Hz, with 12 bits of resolution.
  Total Amount of bits: 3'486'182 bits

- **Kajsa**
  Kajsa is controlled through 3 signals, and depending on signal it will perform a measurement with a resolution of 16 bits with a maximum sampling rate of 1 Hz.
  Total Amount of bits: 96'838 bits

- **Kalle, Piff and Puff**
  Kalle,Piff and Puff are three instrument that may work separately or in combination in common measurement series in a number of combinations.
  At most they will work all three simultaneously and for a whole orbital period.
  The data exchanged by Kalle, Piff och Puff are controlled by the ground station.
  All three of them will perform measurement with a resolution of 16 bits and with a sampling rate of 12 Hz
  Total Amount of bits: 871'546 bits (all three working and sending data at the same time)

- **House keeping signals**
  The system shall also monitor the following signals:

    - 50 temperature measurements each of 8 bits

- 10 voltage measurements on the power bus each of 8 bits

- 20 currents measurements each of 8 bits

- 8 pressure analysis each of 8 bits

- 43 single status bits at 0.02 Hz sampling rate

- 8 re-reads of digital 8 bit control registers that shall be read when they are changed

Total Amount of bits (Temperature): 2'420'960 bits
Total Amount of bits (Power): 484'192 bits
Total Amount of bits (Current): 968'384 bits
Total Amount of bits (Pressure): 387'359 bits
Total Amount of bits (Others): 392'533 bits

Total Amount of bits: 3'781'927 bits

For all of the sensors, when not stated, it has been assumed a period of 1 Hz between one measurament and the other.

Budget bits to be sent: 3'608'236'494
Total bits available to be transferred in 10' using SpaceWire: 240'000'000'000

bits budget per satellite's orbital period					
Mimmi	Musse	Kajsa	Kalle, Pich and Puff	House keeping	Total
3'600'000'000	3'486'182	96'838	871'546	3'781'927	3'608'236'494

Bits per Hz cycle

- Mimmie
  Total Amount of bits 1 Hz: 0 bits
  Total Amount of bits 0,0166 Hz: 3'600'000'000 bits

- Musse
  Total Amount of bits 1 Hz: 0 bits
  Total Amount of bits 12 Hz: 3'486'182 bits

- Kalle, Piff and Puff
  Total Amount of bits 1 Hz: 0 bits
  Total Amount of bits 12 Hz: 871'546 bits

- House keeping signals

  Total Amount of bits (Temperature) 1 Hz: 2'420'960 bits
  Total Amount of bits (Power) 1 Hz: 484'192 bits
  Total Amount of bits (Current) 1 Hz: 968'384 bits
  Total Amount of bits (Pressure) 1 Hz: 387'359 bits
  Total Amount of bits (Others) 1 Hz: 0
  Total Amount of bits (Temperature) 12 Hz: 0 bits
  Total Amount of bits (Power) 12 Hz: 0 bits
  Total Amount of bits (Current) 12 Hz: 0 bits
  Total Amount of bits (Pressure) 12 Hz: 0 bits
  Total Amount of bits (Others) 12 Hz: 0 bits