

CONFIDENTIAL - INTELLIGENT SOFTWARE & ENTERPRISE COMPUTERS LTD.

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## 1. Power Consumption Considerations

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The main output should be capable of powering one active 128K RAM card, four inactive (refreshing only) 128K RAM cards and a disk controller simultaneously. The current requirement is therefore as follows:

Current consumption of disk controller = 550mA

Current consumption of motherboard buffers, etc. = 490mA

Current of active RAM card = 516mA

Current of inactive RAM card = 436mA

Total current requirement =  $550 + 490 + 516 + (4 \times 436) = 3.3A$   
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Most conceivable uses for the +/-12V supplies would only require a few milliamps, as the disk drives will be powered separately. Therefore 100mA should be sufficient and cheap to produce with either a switch-mode or linear regulator.

## 2. Specification

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General: The power supply will be constructed on a separate PCB to the motherboard. If a switch-mode design is used, it must be screened. The supply must operate within a box which may or may not provide ventilation. The transformer will be external to the motherboard unit. The following specifications form a minimum requirement for a supply with an operating temperature range of 0-50 degrees Celsius. (Junction temperatures should not exceed 100 degrees.)

Nominal input voltage: 240V (50Hz) - UK  
220V (50Hz) - Europe

Input voltage range: +10% / -15% from nominal.

Line regulation: +/-0.2% maximum.

Output voltages (including regulation error and ripple):

- (1) +5V +/-5% (+4.75V min. / +5.25V max.).
- (2) +12V +/-10% (+10.8V min. / +13.2V max.).
- (3) -12V +/-10% (-10.8V min. / -13.2V max.).

Maximum continuous load: Output (1) : 3.3A (300mA minimum).  
Outputs (2) & (3): 100mA (0mA minimum).

Maximum output ripple (1Hz - 10MHz):

- Output (1) : 50mV pk-pk (1%).
- Outputs (2) & (3): 120mV pk-pk (1%).

Load regulation: Output (1) : +/-2% maximum.  
Outputs (2) & (3): +/-5% maximum.

Hold-up time: 20ms min. at full load and minimum input voltage.

Switching frequency (for a switch-mode type): Greater than 20kHz.

Protection: Indefinite short-circuit protection or foldback current-limiting on all outputs, automatically resetting.

Standards: Supply should meet recognised standards for safety (VDE 0806 / IEC 380 / BS standards) and EMI (VDE 0871 Level B).