PENGUIN SOLUTIONS

Long Term Storage of Penguin Edge Products

As Penguin Edge sunsets some of their legacy computing products, customers may have the need to perform lifetime purchases of those products to support existing fielded systems or potentially the creation of a new systems based on those computing products. This document details the conditions in which these products should be maintained to maximize the effectiveness of those computing products when they are used, potentially many years in the future.

Environmental Conditions

A storage temperature of 73°F to 78°F, 23°C to 26°C, and maximum humidity 40% is recommended. Storage in the original shipping packages is sufficient. For best environmental stability, storage in nitrogen is recommended for storage over 5 years.

Storage Conditions for Electronics

If the original packaging does not exist, use:

- *Static Shielding (ESD) Bag preferably Resealable Bags.*
- *Desiccant Bags, which are changed every other year.*
- *At a minimum, a Cardboard Storage Box, but preferably ESD Conductive Storage Box with lid. Boxes keep dust away and should be for ease of desiccant replacements.*

Batteries

When the boards are manufactured and have completed final acceptance testing, they are put into a sleep mode which stops the real time clock to save the life of the battery. Typical life span for batteries is 9-11years. *When the boards are taken out of storage, the boards will need to have the real time clocks set.*

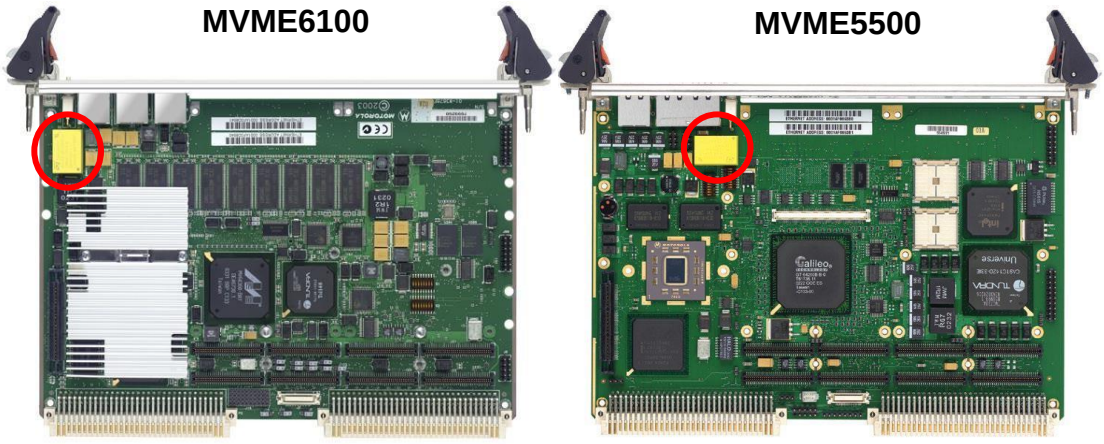
After very long storage, the batteries may need to be replaced. Details below will help determine the type of replacement to purchase. If removal of the batteries is desired as part of a long term storage strategy, batteries should be stored individually in non-ESD bags, dated and stored in the same environmental conditions as the boards.

Battery Removal

MVME5500/MVME6100

These boards have a SnapHat Battery Pack, M4T28, which is composed of two parts. The top part is a battery called a SnapHat. To remove and store it, very carefully pry this off the board and store it. Damage to the battery or remaining SRAM can occur if removed incorrectly.

For the MVME5500 and MVME6100 family of boards, this part has a reference designation of U1.



DESIGNS WITH BUTTON CELLS

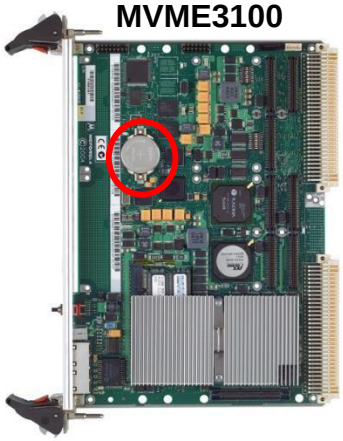
The battery is designed to provide four years of real-time clock (RTC) data retention when the blade is unpowered.

VME boards with button cells:

- *MVME3100*
- *MVME4100*
- *MVME7100*
- *MVME2502*
- *MVME8105*

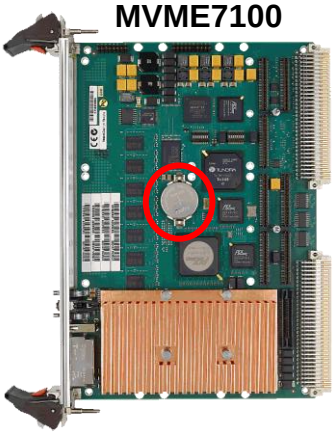
These VME cards all have some form of button cell on the board that should be easy to recognize. Removing the cell is done by sliding the cell out of the holding mechanism. The next few pictures will indicate the position of those batteries.

MVME3100



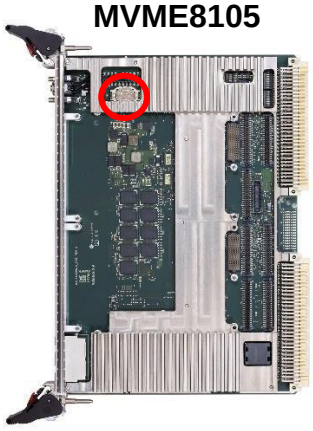
MVME4100

MVME7100



MVME2502

MVME8105

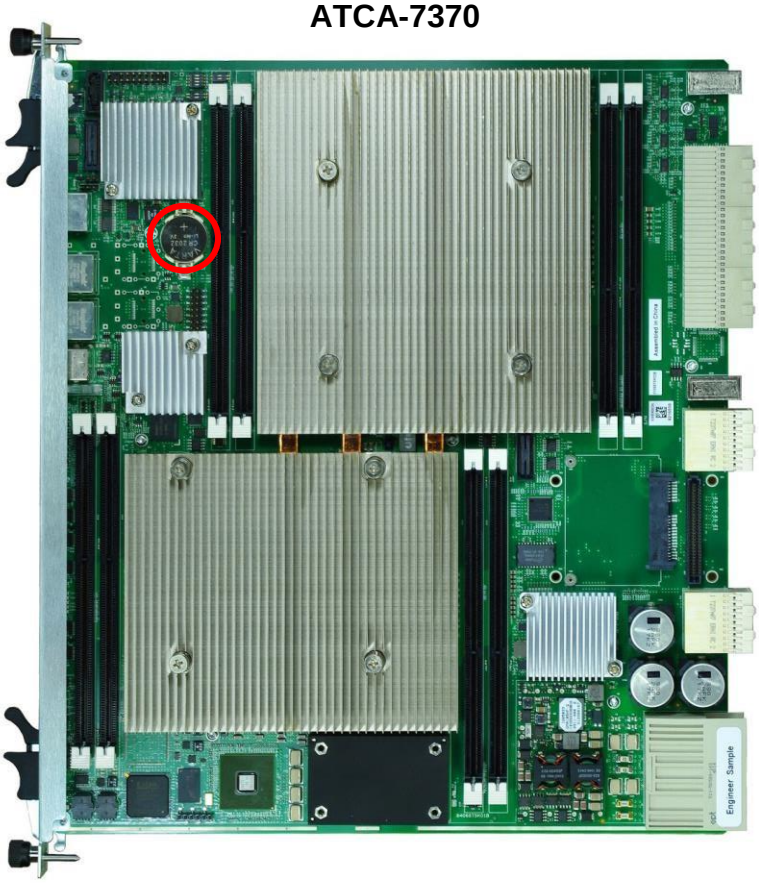


ATCA BLADES WITH BUTTON CELLS

All of the Penguin ATCA Blades used CR2032 button cells.

Batteries are located in various locations on the boards based on the blade component layout requirements. Removal is the same as other button cells described above. The picture below is representative of a typical ATCA Blade.

ATCA-7370



STARTING Real Time Clocks

Here are the commands to start and stop the real time clocks on the processor boards mentioned above.

MVME5500, MVME3100, MVME4100, MVME7100

START

```
MVME4100> set -t040423103000
MVME4100> time
TUE APR  4 10:30:02.00 2023
```

STOP

```
MVME4100> stop
MVME4100> time
Clock is Not Ticking
```

MVME2502, MVME8105

ENABLE THE RTC OSCILLATOR

Switch S2-6 on

Run the commands on the MVME2502

MVME2502=> i2c mm 0x68 e.1
0000000e: 98 ? 1c
0000000f: 82 ? .
MVME2502=> date 032417082023
Warning: RTC oscillator has stopped
Get date failed
Date: 2014-03-24 (Monday) Time: 17:06:58
MVME2502=> date
Date: 2014-03-24 (Monday) Time: 17:07:05
MVME2502=> date 032417082023
Date: 2023-03-24 (Friday) Time: 17:08:00

Switch S2-6 OFF

DISABLE THE RTC OSCILLATOR

Switch S2-6 on

Run the command on the MVME2502

MVME2502=> i2c mm 0x68 e.1
0000000e: 1c ? 0x98
0000000f: 80 ? .
MVME8105 => date
Warning: RTC oscillator has stopped
Get date failed
date - get/set/reset date & time

Usage:
date [MMDDhhmm[[CC]YY][.ss]]
date reset
- without arguments: print date & time
- with numeric argument: set the system date & time
- with 'reset' argument: reset the RTC

Switch S2-6 off