Energytrace results

The jumpers on the LAUNCHXL-CC1312R launchpad and ULP sensor Boosterpack looks like this:

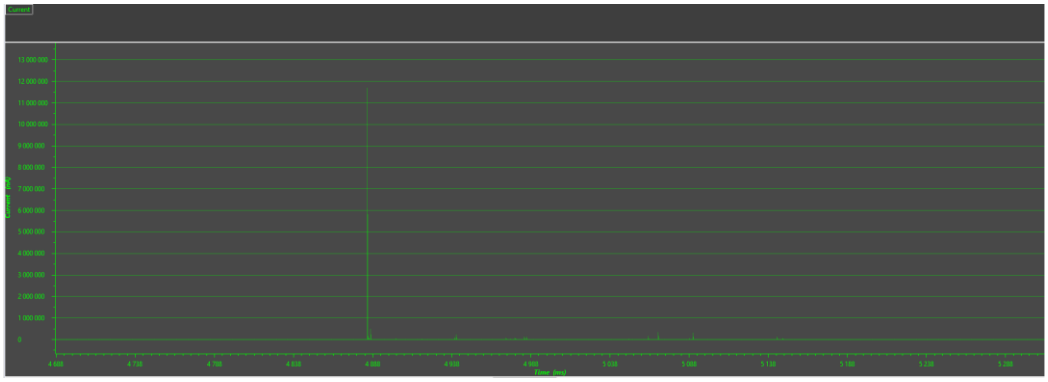
If testing the micreedlightnodefinal project light sensor power and adc sel light needs a jumper between the pin like the reed sensor power pins in the picture above.

The different test were: no Reed Switch interrupt and no ack packet, 1 Reed Switch interrupt and no ack packet, 1 Reed Switch interrupt and 1 ack packet. For the micreedlightnode project

having the reed switch interrupt and wake the CPU or waiting for the 2 minute timer to wake the CPU did not give a noticeable result.

The results from the wakeonreednodefinal project

Measuring the low power capabilities when there is no interrupt from the reed switch:



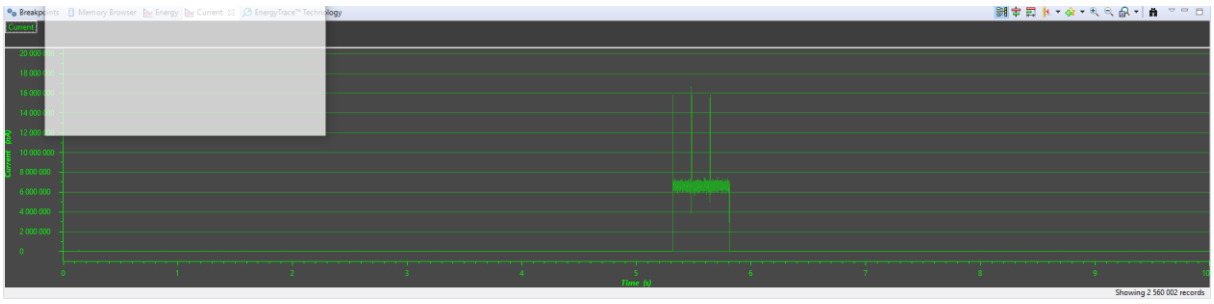
EnergyTrace™ Technology

EnergyTrace™ Profile

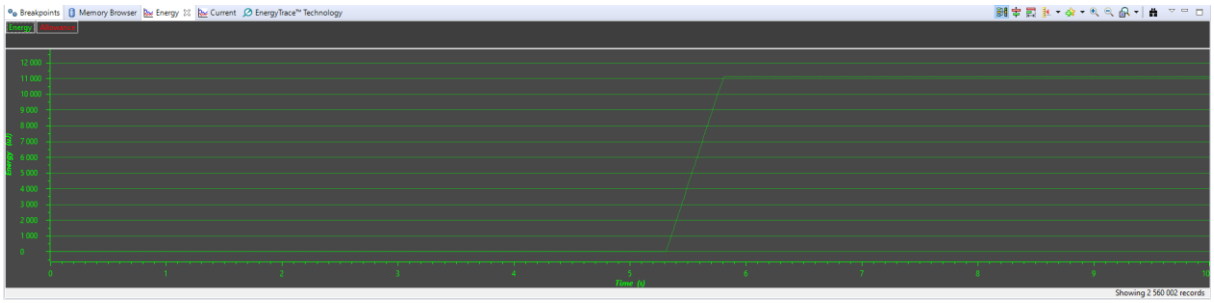
Name	Live
System	
Time	10 sec
Energy	0,033 mJ
Power	
Mean	0,0033 mW
Min	0,0000 mW
Max	39,8218 mW
Voltage	
Mean	3,3000 V
Current	
Mean	0,0010 mA
Min	0,0000 mA
Max	12,0672 mA
Battery Life	CR2032: 22 year 8 month (est.)

Results with 1 interrupt in the 10 second timer, no ack packet from the gateway:

nA/Time



microjoules/Time:

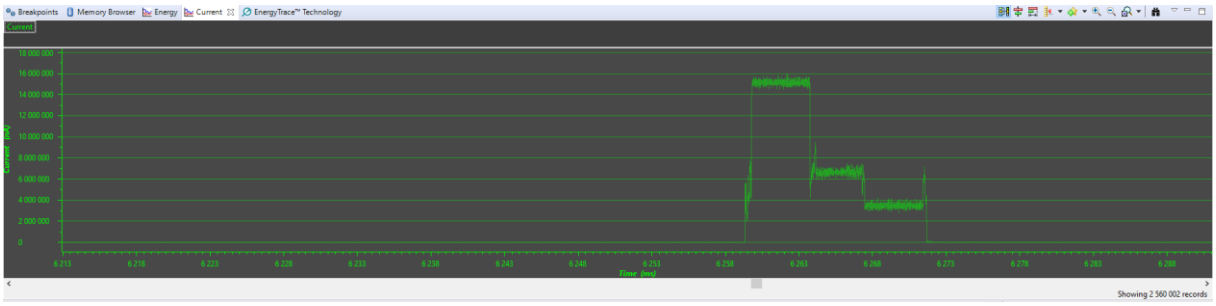


Energytrace profile:

EnergyTrace™ Profile

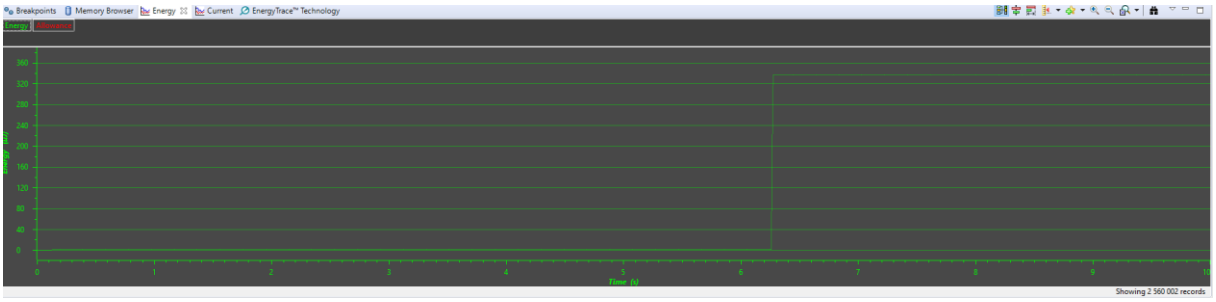
Name	Live
System	
Time	10 sec
Energy	11,137 mJ
Power	
Mean	1,1137 mW
Min	0,0000 mW
Max	58,6544 mW
Voltage	
Mean	3,3000 V
Current	
Mean	0,3375 mA
Min	0,0000 mA
Max	17,7741 mA
Battery Life	CR2032: 24 day 16 hour (est.)

Results with 1 interrupt and 1 immediate ack packet from the gateway. This can be made possible having the gateway running the wakeonreedgatewayfinal code:

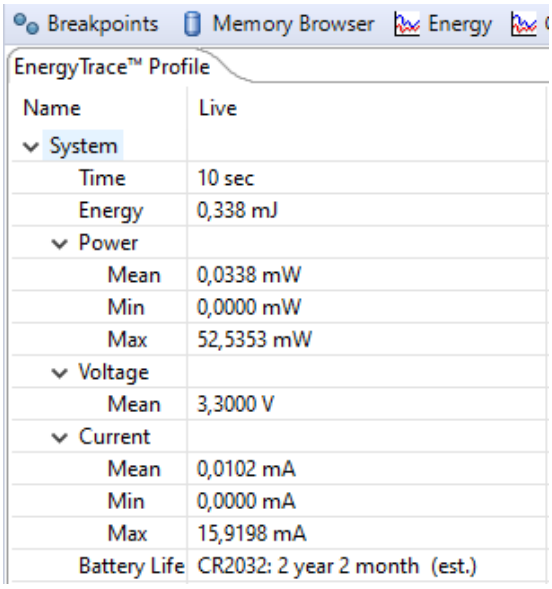


Notice the power surge when the Reed switch is closed, and the CPU woken.

microjoules/Time:



The statistics:



Breakpoints | Memory Browser | Energy

EnergyTrace™ Profile

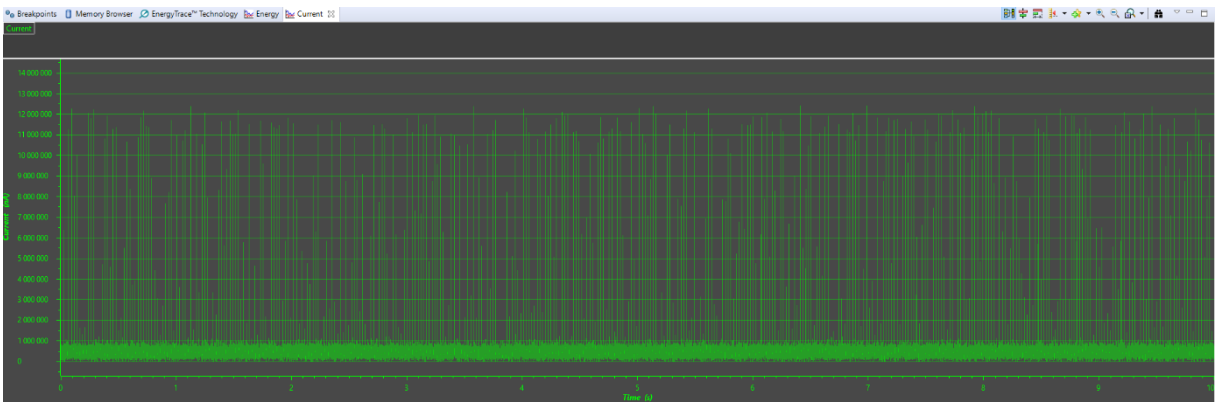
Name	Live
System	
Time	10 sec
Energy	0,338 mJ
Power	
Mean	0,0338 mW
Min	0,0000 mW
Max	52,5353 mW
Voltage	
Mean	3,3000 V
Current	
Mean	0,0102 mA
Min	0,0000 mA
Max	15,9198 mA
Battery Life	CR2032: 2 year 2 month (est.)

This means that if the reed switch is toggled with a period of 10 seconds and an ack packet is received, the node will live for about 2 years and 2 months.

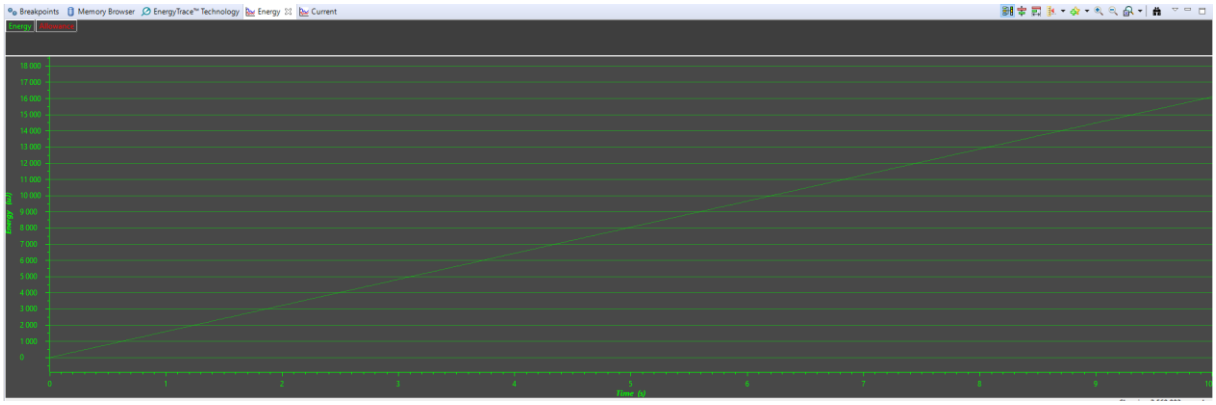
Energytrace results from the node running the micreedlightnodefinal project:

Measuring the low power capabilities when there is no wakeup of the CPU:

nA/Time:



Microjoules/time:



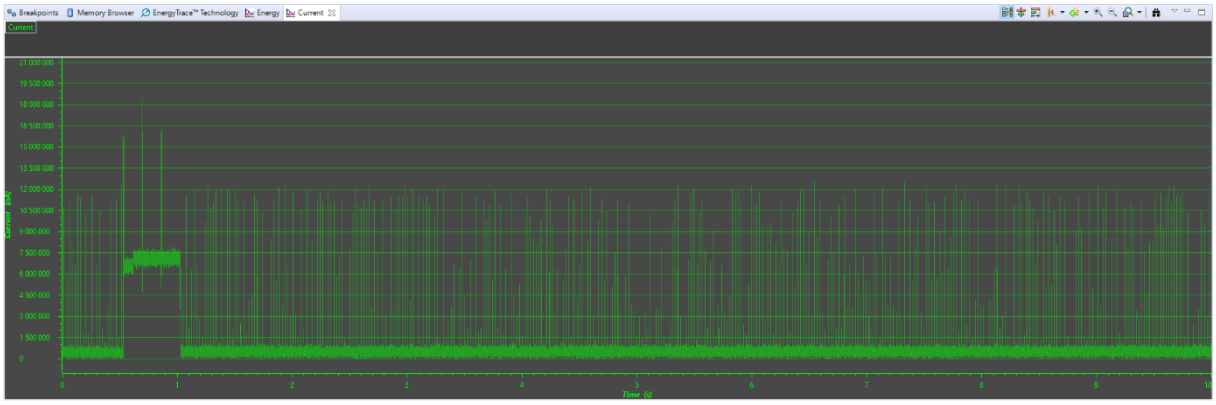
Energytrace profile:

EnergyTrace™ Profile

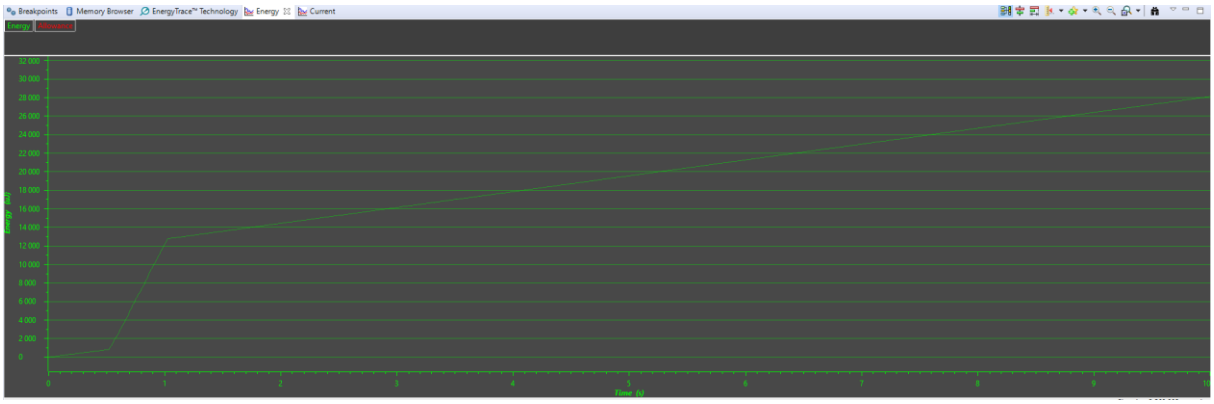
Name	Live
System	
Time	10 sec
Energy	16,104 mJ
Power	
Mean	1,6104 mW
Min	0,0000 mW
Max	41,9461 mW
Voltage	
Mean	3,3000 V
Current	
Mean	0,4880 mA
Min	0,0000 mA
Max	12,7109 mA
Battery Life	CR2032: 17 day 1 hour (est.)

Results with 1 wakeup of the CPU in the 10 second timer, no ack packet from the gateway:

nA/Time



microjoules/Time



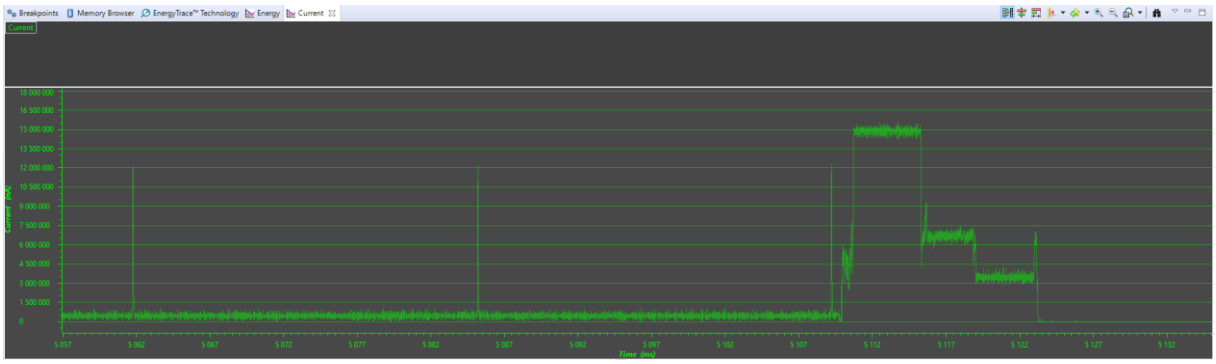
Energytrace profile:

EnergyTrace™ Profile

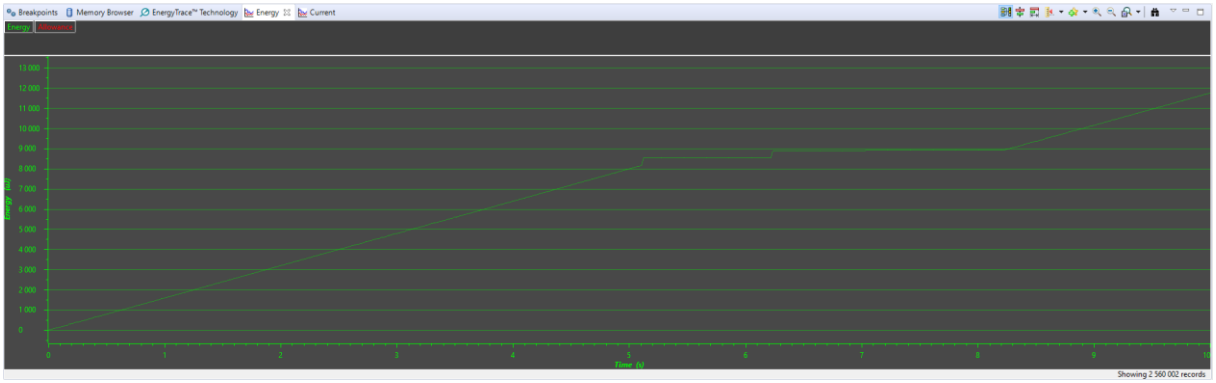
Name	Live
System	
Time	10 sec
Energy	28,115 mJ
Power	
Mean	2,8115 mW
Min	0,0000 mW
Max	60,9554 mW
Voltage	
Mean	3,3000 V
Current	
Mean	0,8520 mA
Min	0,0000 mA
Max	18,4713 mA
Battery Life	CR2032: 9 day 18 hour (est.)

Results with 1 wakeup of the CPU and 1 immediate ack packet from the gateway. This can be made possible having the gateway running the micreedlightgatewayfinal code:

nA/Time:



microjoules/Time:



Energytrace profile:

EnergyTrace™ Profile

Name	Live
System	
Time	10 sec
Energy	11,769 mJ
Power	
Mean	1,1769 mW
Min	0,0000 mW
Max	52,1629 mW
Voltage	
Mean	3,3000 V
Current	
Mean	0,3566 mA
Min	0,0000 mA
Max	15,8069 mA
Battery Life	CR2032: 23 day 8 hour (est.)