

Capabilities Overview – Shimmer 2

Feature	Purpose	Component/Capabilities
I/O	Capture of sensor and user data	<p style="text-align: center;">Integrated</p> <ul style="list-style-type: none"> • 3 Axis Accelerometer using Freescale MMA7260Q 1.5/2/4/6g Micropower MEMs Accelerometer into CPU A/D • 3 Colored Status LEDs • Reset/User Programmable on/off switch • Tilt/vibration sensor - minimal power sensing option which can also be used as an application input to trigger power-state transitions <p style="text-align: center;">Expansion</p> <ul style="list-style-type: none"> • Hirose ST60 series 18 position rugged mobile style external Header for charging, programming, and tethered sensor extensions (12 multi-purpose I/O connections). • Hirose DF12 series 20 position internal Expansion Header for internal sensor daughter boards (14 multi-purpose I/O connections)
Processing	Control operating state Provide best Signal quality Operational alerts and messages	<p style="text-align: center;">MSP430F1611 CPU</p> <ul style="list-style-type: none"> ▪ 10Kbyte RAM, 48Kbyte Flash ▪ Up to 8MHz ▪ 8 Channels of 12bit A/D ▪ Extremely low power during periods of inactivity ▪ Proven solution in medical sensing applications
Storage	No loss of data while mobile, during network outages or while changing batteries	<p style="text-align: center;">MicroSD slot</p> <ul style="list-style-type: none"> ▪ Up to 2GByte currently available ▪ SD Card with data-path MUX for full-speed host transfer when docked and soft-power control with dock detection over-ride ▪ NAND Flash based, ~20mA read/write power
Communication	Hi-reliability Standards Based Mobility	<p style="text-align: center;">802.15.4 Radio</p> <ul style="list-style-type: none"> ▪ Chipcon CC2420 ▪ GigaAnt Rufa 4.1dBi Antenna <p style="text-align: center;">Class 2 Bluetooth™ Radio</p> <ul style="list-style-type: none"> ▪ Mitsumi WML-C46N CSR based design
Form factor	Wearable	<ul style="list-style-type: none"> ▪ Minimum Sensor volume is 1.75" x .8" x .5" and 10 grams without Bluetooth. Comparable to a lipstick ▪ Initial durable enclosure is roughly the size of "Zippo" lighter and has provisions for expansion board and Bluetooth. The enclosure can be mounted in an MP3 player armband accessory.
Operating Life and Power	Long operating life Easy maintenance and deployment	<ul style="list-style-type: none"> ▪ Design target is 10 days while sampling 6 channels at 50Hz w/250mAH battery. We also ship with larger capacity of 500 mAH. ▪ "Deep Sleep" shelf life is >1 year per battery spec ▪ Integrated Li-ion battery charger ▪ Ability to monitor and indicate power status ▪ Power control features including soft-power switching and low-battery shutdown