1 Sigmaban+ (2019)

- **Robot name:** Sigmaban+
- **Height:** 64 cm
- **Weight:** 5.5 kg
- **Walking speed:** 35 cm/s
- **Motors:** 20 DOF
  - Neck: Dynamixel MX-64 (2 motors)
  - Upper Body: Dynamixel MX-64 (3 per arm)
  - Lower Body: Dynamixel MX-106 (6 per arm)
- **Sensors:**
  - Camera: Point Grey Blackfly GigE
  - IMU: 9 Degrees of Freedom - Razor
  - Foot Pressure: 4 Strain Gauge Sensors per foot
- **Computing units:**
  - Low-level: ARM7 (stm32) 72MHz (Maple mini)
  - High-level: Intel NUC
    - Intel Core i5 AMD 1.2 GHz Micro-6700T
    - 8GB RAM
    - SSD 256Go
- **Operating System:** Linux (Debian 7)
2 Sigmaban+ (2018)

– **Robot name:** Sigmaban+
– **Height:** 64 cm
– **Weight:** 5.5 kg
– **Walking speed:** 35 cm/s
– **Motors:** 20 DOF
  • Neck: Dynamixel MX-28 (2 motors)
  • Upper Body: Dynamixel MX-64 (3 per arm)
  • Lower Body: Dynamixel MX-106 (6 per arm)
– **Sensors:**
  • Camera: Point Grey Blackfly GigE
  • IMU: 9 Degrees of Freedom - Razor
  • Foot Pressure: 4 Strain Gauge Sensors per foot
– **Computing units:**
  • Low-level: ARM7 (stm32) 72MHz (Maple mini)
  • High-level: Fitlet
    * AMD 1.2 GHz Micro-6700T
    * 2GB SDRAM
    * SSD 128Go
– **Operating System:** Linux (Debian 7)
– **Robot name**: Grosban 1.1  
– **Height**: 75 cm  
– **Weight**: 4.5 kg  
– **Walking speed**: 50 cm/s  
– **Number of degrees of freedom**: 20  
– **Type of motors**: Dynamixel MX-28 (upper body), Dynamixel EX-106 (lower body).  
– **Sensors**:  
  - Camera: Point Grey Blackfly GigE  
  - IMU: 9 Degrees of Freedom - Razor  
  - Foot Pressure: 8 Strain Gauge Sensors (4 per foot)  
– **Computing units**:  
  - Low-level: ARM7 (stm32) 72MHz (Maple mini)  
  - High-level: fitlet, AMD 1.2 GHz Micro-6700T, 2GB SDRAM, SSD 128Go  
– **Operating System**: Linux (Debian 7)
Robot name: Sigmaban 1.5
Height: 57 cm
Weight: 4.2 kg
Walking speed: 25 cm/s
Number of degrees of freedom: 20
Type of motors: Dynamixel MX-28 (upper body), Dynamixel MX-64 (lower body).
Sensors:
- Camera: Point Grey Blackfly GigE
- IMU: 9 Degrees of Freedom - Razor
- Foot Pressure: 8 Strain Gauge Sensors (4 per foot)
Computing units:
- Low-level: ARM7 (stm32) 72MHz (Maple mini)
- High-level: fitlet, AMD 1.2 GHz Micro-6700T, 2GB SDRAM, SSD 128Go
Operating System: Linux (Debian 7)
Robot name: Grosban 1.0
- Height: 90 cm
- Weight: 6.5 kg
- Walking speed: 35 cm/s
- Number of degrees of freedom: 20
- Type of motors: Dynamixel MX-28 (upper body), Dynamixel EX-106 (lower body).

Sensors:
- Camera: See3CAM 11CUG (e-consystems)
- IMU: 9 Degrees of Freedom - Razor
- Foot Pressure: 8 Strain Gauge Sensors (4 per foot)

Computing units:
- Low-level: ARM7 (stm32) 72MHz (Maple mini)
- High-level: fitlet, AMD 1.2 GHz Micro-6700T, 2GB SDRAM, SSD 128Go

Operating System: Linux (Debian 7)
- **Robot name**: Sigmaban 1.4
- **Height**: 57 cm
- **Weight**: 4.2 kg
- **Walking speed**: 25 cm/s
- **Number of degrees of freedom**: 20
- **Type of motors**: Dynamixel RX-28 (upper body), Dynamixel RX-64 (lower body).
- **Sensors**:
  - Camera: See3CAM 11CUG (e-consystems)
  - IMU: 9 Degrees of Freedom - Razor
  - Foot Pressure: 8 Strain Gauge Sensors (4 per foot)
- **Computing units**:
  - Low-level: ARM7 (stm32) 72MHz (Maple mini)
  - High-level: fitlet, AMD 1.2 GHz Micro-6700T, 2GB SDRAM, SSD 128Go
- **Operating System**: Linux (Debian 7)
– **Robot name**: Sigmaban 1.3
– **Height**: 54 cm
– **Weight**: 3.8 kg
– **Walking speed**: 25 cm/s
– **Number of degrees of freedom**: 20
– **Type of motors**: Dynamixel RX-28 (upper body), Dynamixel RX-64 (lower body).
– **Sensors**:
  - Camera: Logitech HD Pro C930
  - IMU: 9 Degrees of Freedom - Razor
– **Computing units**:
  - Low-level: ARM7 (stm32) 72MHz (Maple mini)
  - High-level: fit-PC2, Intel Atom 1.6GHz, 2GB SDRAM, SSD 128Go
– **Operating System**: Linux (Debian 7)
– Robot name: Sigmaban 1.2
– Height: 56 cm
– Weight: 4.0 kg
– Walking speed: 12 cm/s
– Number of degrees of freedom: 22 actuated, one passive linear joint
– Type of motors: Dynamixel RX-24, Dynamixel RX-28, Dynamixel RX-64.
– Sensors:
  • Camera: Logitech HD Pro C905
  • IMU: 9 Degrees of Freedom - Razor
– Computing units:
  • Low-level: ARM7 (stm32) 72MHz (Maple mini)
  • High-level: fit-PC2, Intel Atom 1.6GHz, 2GB SDRAM, SSD 128Go
– Operating System: Linux (Debian 7)
9 Sigmaban 1.1 (2013)

- **Robot name**: Sigmaban 1.1
- **Height**: 56 cm
- **Weight**: 4.0 kg
- **Walking speed**: unknown
- **Number of degrees of freedom**: 22
- **Type of motors**: Dynamixel RX-28, Dynamixel RX-64.

**Sensors**:
- Camera Type: Logitech C905
- Gyroscope: IDG500
- Accelerometer: ADXL335.
- FSR force sensor (feet)
- Potentiometers (hip linear passive joint)

**Computing unit(s)**: FitPC 2GB SDRAM, 1.6GHz
ARM7, 64KB RAM, 55MIPS.
– **Robot name**: Sigmaban 1.0
– **Height**: 56cm
– **Weight**: 3.7 kg
– **Walking speed**: 0.15m/s
– **Number of degrees of freedom**: 22
– **Type of motors**: Dynamixel RX-28, Dynamixel RX-64.
– **Sensors**:
  - Camera Type: Philips SPC620NC
  - Gyroscope: IDG500
  - Accelerometer: ADXL335.
– **Computing unit(s)**: ARM9, 64MB SDRAM, 210MHz
  ARM7, 64kB RAM, 55 MIPS.