4.2 Register map

The register map is separated into two logical pages, Page 1 contains sensor specific configuration data and Page 0 contains all other configuration parameters and output data.

At power-on Page 0 is selected, the PAGE_ID register can be used to identify the current selected page and change between page 0 and page 1.

4.2.1 Register map Page 0

Table 4-1: Register Access Coding

read/write	read only	write only	reserved

Table 4-2: Register Map Page 0

Register Address	Register Name	Default Value	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
7F-6B	Reserved	NA								
6A	MAG_RADIUS_MSB		Magnetometer Radius							
69	MAG_RADIUS_LSB		Magnetometer Radius							
68	ACC_RADIUS_MSB		Accelerometer Radius							
67	ACC_RADIUS_LSB		Accelerometer Radius							
66	GYR_OFFSET_Z_MSB	0x00	Gyroscope Offset Z <15:8>							
65	GYR_OFFSET_Z_LSB	0x00	Gyroscope Offset Z <7:0>							
64	GYR_OFFSET_Y_MSB	0x00	Gyroscope Offset Y <15:8>							
63	GYR_OFFSET_Y_LSB	0x00	Gyroscope Offset Y <7:0>							
62	GYR_OFFSET_X_MSB	0x00	Gyroscope Offset X <15:8>							
61	GYR_OFFSET_X_LSB	0x00	Gyroscope Offset X <7:0>							
60	MAG_OFFSET_Z_MSB	0x00	Magnetometer Offset Z <15:8>							
5F	MAG_OFFSET_Z_LSB	0x00	Magnetometer Offset Z <7:0>							
5E	MAG_OFFSET_Y_MSB	0x00	Magnetometer Offset Y <15:8>							
5D	MAG_OFFSET_Y_LSB	0x00	Magnetometer Offset Y <7:0>							
5C	MAG_OFFSET_X_MSB	0x00	Magnetometer Offset X <15:8>							
5B	MAG_OFFSET_X_LSB	0x00	Magnetometer Offset X <7:0>							
5A	ACC_OFFSET_Z_MSB	0x00	Accelerometer Offset Z <15:8>							
59	ACC_OFFSET_Z_LSB	0x00	Accelerometer Offset Z <7:0>							
58	ACC_OFFSET_Y_MSB	0x00	Accelerometer Offset Y <15:8>							
57	ACC_OFFSET_Y_LSB	0x00	Accelerometer Offset Y <7:0>							
56	ACC_OFFSET_X_MSB	0x00	Accelerometer Offset X <15:8>							
55	ACC_OFFSET_X_LSB	0x00	Accelerometer Offset X <7:0>							
43 - 54	Reserved	0x00								

Register Address	Register Name	Default Value	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
42	AXIS_MAP_SIGN	TBD						Remapped X axis sign	Remapped Y axis sign	Remapped Z axis sign
41	AXIS_MAP_CONFIG	TBD			Remapped Z axis value		Remapped Y axis value		Remapped X axis value	
40	TEMP_SOURCE	0x02							TEMP_Source <1:0>	
3F	SYS_TRIGGER	0x00	CLK_SEL	RST_INT	RST_SYS					Self_Test
3E	PWR_MODE	0x00							Power Mode <1:0>	
3D	OPR_MODE	0x1C					Operation Mode <3:0>			
3C	Reserved	0xFF								
3B	UNIT_SEL	0x80	ORI_Android_Windows			TEMP_Unit		EUL_Unit	GYR_Unit	ACC_Unit
3A	SYS_ERR	0x00	System Error Code							
39	SYS_STATUS	0x00	System Status Code							
38	SYS_CLK_STATUS	0x00								ST_MAIN_CLK
37	INT_STA	0x00	ACC_NM	ACC_AM	ACC_HIGH_G		GYR_HIGH_RATE	GYRO_AM		
36	ST_RESULT	0x0F					ST_MCU	ST_GYR	ST_MAG	ST_ACC
35	CALIB_STAT	0x00	SYS Calib Status 0:3		GYR Calib Status 0:3		ACC Calib Status 0:3		MAG Calib Status 0:3	
34	TEMP	0x00	Temperature							
33	GRV_Data_Z_MSB	0x00	Gravity Vector Data Z <15:8>							
32	GRV_Data_Z_LSB	0x00	Gravity Vector Data Z <7:0>							
31	GRV_Data_Y_MSB	0x00	Gravity Vector Data Y <15:8>							
30	GRV_Data_Y_LSB	0x00	Gravity Vector Data Y <7:0>							
2F	GRV_Data_X_MSB	0x00	Gravity Vector Data X <15:8>							
2E	GRV_Data_X_LSB	0x00	Gravity Vector Data X <7:0>							
2D	LIA_Data_Z_MBS	0x00	Linear Acceleration Data Z <15:8>							
2C	LIA_Data_Z_LSB	0x00	Linear Acceleration Data Z <7:0>							
2B	LIA_Data_Y_MBS	0x00	Linear Acceleration Data Y <15:8>							
2A	LIA_Data_Y_LSB	0x00	Linear Acceleration Data Y <7:0>							
29	LIA_Data_X_MBS	0x00	Linear Acceleration Data X <15:8>							
28	LIA_Data_X_LSB	0x00	Linear Acceleration Data X <7:0>							
27	QUA_Data_z_MSB	0x00	Quaternion z Data <15:8>							
26	QUA_Data_z_LSB	0x00	Quaternion z Data <7:0>							
25	QUA_Data_y_MSB	0x00	Quaternion y Data <15:8>							
24	QUA_Data_y_LSB	0x00	Quaternion y Data <7:0>							
23	QUA_Data_x_MSB	0x00	Quaternion x Data <15:8>							
22	QUA_Data_x_LSB	0x00	Quaternion x Data <7:0>							
21	QUA_Data_w_MSB	0x00	Quaternion w Data <15:8>							
20	QUA_Data_w_LSB	0x00	Quaternion w Data <7:0>							
1F	EUL_Pitch_MSB	0x00	Pitch Data <15:8>							

Register Address	Register Name	Default Value	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
1E	EUL_Pitch_LSB	0x00	Pitch Data <7:0>							
1D	EUL_Roll_MSB	0x00	Roll Data <15:8>							
1C	EUL_Roll_LSB	0x00	Roll Data <7:0>							
1B	EUL_Heading_MSB	0x00	Heading Data <15:8>							
1A	EUL_Heading_LSB	0x00	Heading Data <7:0>							
19	GYR_DATA_Z_MSB	0x00	Gyroscope Data Z <15:8>							
18	GYR_DATA_Z_LSB	0x00	Gyroscope Data Z <7:0>							
17	GYR_DATA_Y_MSB	0x00	Gyroscope Data Y <15:8>							
16	GYR_DATA_Y_LSB	0x00	Gyroscope Data Y <7:0>							
15	GYR_DATA_X_MSB	0x00	Gyroscope Data X <15:8>							
14	GYR_DATA_X_LSB	0x00	Gyroscope Data X <7:0>							
13	MAG_DATA_Z_MSB	0x00	Magnetometer Data Z <15:8>							
12	MAG_DATA_Z_LSB	0x00	Magnetometer Data Z <7:0>							
11	MAG_DATA_Y_MSB	0x00	Magnetometer Data Y <15:8>							
10	MAG_DATA_Y_LSB	0x00	Magnetometer Data Y <7:0>							
F	MAG_DATA_X_MSB	0x00	Magnetometer Data X <15:8>							
E	MAG_DATA_X_LSB	0x00	Magnetometer Data X <7:0>							
D	ACC_DATA_Z_MSB	0x00	Acceleration Data Z <15:8>							
C	ACC_DATA_Z_LSB	0x00	Acceleration Data Z <7:0>							
B	ACC_DATA_Y_MSB	0x00	Acceleration Data Y <15:8>							
A	ACC_DATA_Y_LSB	0x00	Acceleration Data Y <7:0>							
9	ACC_DATA_X_MSB	0x00	Acceleration Data X <15:8>							
8	ACC_DATA_X_LSB	0x00	Acceleration Data X <7:0>							
7	Page ID	0x00	Page ID							
6	BL_Rev_ID	NA	Bootloader Version							
5	SW_REV_ID_MSB	0x03[6]	SW Revision ID <15:8>							
4	SW_REV_ID_LSB	0x08[7]	SW Revision ID <7:0>							
3	GYR_ID	0x0F	GYRO chip ID							
2	MAG_ID	0x32	MAG chip ID							
1	ACC_ID	0xFB	ACC chip ID							
0	CHIP_ID	0xA0	BNO055 CHIP ID							

[6] The current software version is 0.3.0.8 and therefore the SW_REV_ID_MSB is 0x03. However the register default value is subject to change with respect to the updated software.

[7] The current software version is 0.3.0.8 and therefore the SW_REV_ID_LSB is 0x08. However the register default value is subject to change with respect to the updated software.

4.2.2 Register map Page 1

Table4-3: Register Map Page 1

Register Address	Register Name	Default Value	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
7F-60	Reserved	0x00								
5F - 50	UNIQUE_ID	n.a.	BNO unique ID							
4F - 20	Reserved	0x00								
1F	GYR_AM_SET	0x0A					Awake Duration <1:0>		Slope Samples <1:0>	
1E	GYR_AM_THRES	0x04		Gyro Any Motion Threshold <6:0>						
1D	GYR_DUR_Z	0x19	HR_Z_Duration							
1C	GYR_HR_Z_SET	0x01		HR_Z_THRES_HYST <1:0>		HR_Z_Threshold <4:0>				
1B	GYR_DUR_Y	0x19	HR_Y_Duration							
1A	GYR_HR_Y_SET	0x01		HR_Y_THRES_HYST <1:0>		HR_Y_Threshold <4:0>				
19	GYR_DUR_X	0x19	HR_X_Duration							
18	GYR_HR_X_SET	0x01		HR_X_THRES_HYST <1:0>		HR_X_Threshold <4:0>				
17	GYR_INT_SETING	0x00	HR_FILT	AM_FILT	HR_Z_AXIS	HR_Y_AXIS	HR_X_AXIS	AM_Z_AXIS	AM_Y_AXIS	AM_X_AXIS
16	ACC_NM_SET	0x0B		NO/SLOW Motion Duration <5:0>						SMNM
15	ACC_NM_THRE	0x0A	Accelerometer NO/SLOW motion threshold							
14	ACC_HG_THRES	0xC0	Accelerometer High G Threshold							
13	ACC_HG_DURATION	0x0F	Accelerometer High G Duration							
12	ACC_INT_Settings	0x03	HG_Z_AXIS	HG_Y_AXIS	HG_X_AXIS	AM/NM_Z_AXIS	AM/NM_Y_AXIS	AM/NM_X_AXIS	AM_DUR <1:0>	
11	ACC_AM_THRES	0x14	Accelerometer Any motion threshold							
10	INT_EN	0x00	ACC_NM	ACC_AM	ACC_HIGH_G		GYR_HIGH_RATE	GYRO_AM		
F	INT_MSK	0x00	ACC_NM	ACC_AM	ACC_HIGH_G		GYR_HIGH_RATE	GYRO_AM		
E	Reserved	0x00								
D	GYR_Sleep_Config	0x00			AUTO_SLP_DURATION <2:0>			SLP_DURATION <2:0>		
C	ACC_Sleep_Config	0x00				SLP_DURATION <3:0>				SLP_MODE
B	GYR_Config_1	0x00						GYR_Power_Mode <2:0>		
A	GYR_Config_0	0x38			GYR_Bandwidth <2:0>			GYR_Range <2:0>		
9	MAG_Config	0x6D		MAG_Power_mode <1:0>		MAG_OPR_Mode <1:0>		MAG_Data_output_rate <2:0>		
8	ACC_Config	0x0D	ACC_PWR_Mode <2:0>			ACC_BW <2:0>			ACC_Range <1:0>	
7	Page ID	0x01	Page ID							
6 - 0	Reserved	n.a.								