

Inflation Option	Smooth Transition
Transition Ratio	0.272
Maximum Layers	5
Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No
Patch Conforming Options	
Triangle Surface Mesher	Program Controlled
Patch Independent Options	
Topology Checking	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Shape Checking	Standard Mechanical
Element Midside Nodes	Program Controlled
Straight Sided Elements	No
Number of Retries	0
Extra Retries For Assembly	Yes
Rigid Body Behavior	Dimensionally Reduced
Mesh Morphing	Disabled
Defeaturing	
Pinch Tolerance	Default (7.2798e-005 m)
Generate Pinch on Refresh	No
Automatic Mesh Based Defeaturing	On
Defeaturing Tolerance	Default (4.0443e-005 m)
Statistics	
Nodes	1957672
Elements	532562
Mesh Metric	Element Quality
Min	1.594e-003
Max	1.
Average	0.59456
Standard Deviation	0.31235

Tabla 2: Parametros del método de mallado.
Fuente: Informe de ANSYS

Object Name	<i>Hex Dominant Method</i>
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	28 Bodies
Definition	
Suppressed	No
Method	Hex Dominant
Element Midside Nodes	Use Global Setting
Free Face Mesh Type	All Quad

ANEXO 3. ESPECIFICACIONES TECNICAS

Por lo mostrado en la Tabla 3, se prefiere el Arduino Mega debido a la gran cantidad de pines que posee, la cantidad de memoria RAM y a la velocidad del reloj interno.

Tabla 3: Comparación de Tarjetas Arduinos
Fuente: <http://www.vb-mundo.com/comparacion-de-diferentes-avr-de-arduino/>

Prestaciones	Arduino UNO	LiliPad Arduino	Arduino Mega 2560	Arduino Fio	Arduino ADK
Microcontroller	ATmega328V	ATmega168V ATmega328V	ATmega256	ATmega328P	ATmega2560
Operating Voltage	5 V	2.7-5.5 V	5V	3.3V	5V
Input Voltage (recommended)	7-12V	2.7-5.5 V	7-12V	3.35 -12 V	7-12V
Input Voltage (limits)	6-20V		6-20V		6-20V
Input Voltage for Charge				3.7- 7 V	
Digital I/O Pins	14 (of which 6 provide PWM output)	14 (of which 6 provide PWM output)	54 (of which 15 provide PWM output)	14 (of which 6 provide PWM output)	54 (of which 15 provide PWM output)
Analog Input Pins	6	6	16	8	16
DC Current per I/O Pin	40 mA	40 mA	40 mA	40 mA	40 mA
DC Current for 3.3V Pin	50 mA		50 mA		50 mA
Flash Memory	32 KB (ATmega328) of which 0.5 KB used by bootloader)	16 KB (of which 2 KB used by bootloader)	256 KB of which 8 KB used by bootloader	32 KB (of which 2 KB used by bootloader)	256 KB of which 8 KB used by bootloader
SRAM	2 KB	1 KB	8 KB	2 KB	8 KB
EEPROM	1 KB	512 bytes	4 KB	1 KB	4 KB
Clock Speed	16 MHz	8 MHz	16 MHz	8 MHz	16 MHz

En la Tabla 4 se describe una comparación entre la tarjeta BeagleBone Black y Raspberry Pi.

Tabla 4: Comparacion BeagleBone Black vs Rasperry PI

Fuente: <http://makezine.com/2014/02/25/how-to-choose-the-right-platform-raspberry-pi-or-beaglebone-black/>

	BeagleBone Black	Raspberry Pi
Base Price	45	35
Processor	1GHz TI Sitara AM3359 ARM Cortex A8	700 MHz ARM1176JZFS
RAM	512 MB DDR3L @ 400 MHz	512 MB SDRAM @ 400 MHz
Storage	2 GB on-board eMMC, MicroSD	SD
Video Connections	1 Micro-HDMI	1 HDMI, 1 Composite
Supported Resolutions	1280×1024 (5:4), 1024×768 (4:3), 1280×720 (16:9), 1440×900 (16:10) all at 16 bit	Extensive from 640×350 up to 1920×1200, this includes 1080p
Audio	Stereo over HDMI	Stereo over HDMI, Stereo from 3.5 mm jack
Operating Systems	Angstrom (Default), Ubuntu, Android, ArchLinux, Gentoo, Minix, RISC OS, others...	Raspbian (Recommended), Ubuntu, Android, ArchLinux, FreeBSD, Fedora, RISC OS, others...
Power Draw	210-460 mA @ 5V under varying conditions	150-350 mA @ 5V under varying conditions
GPIO Capability	65 Pins	8 Pins
Peripherals	1 USB Host, 1 Mini-USB Client, 1 10/100 Mbps Ethernet	2 USB Hosts, 1 Micro-USB Power, 1 10/100 Mbps Ethernet, RPi camera connector

Debido a que se realizarán operaciones matriciales es importante analizar la capacidad de realizar operación con punto flotante de la tarjeta BeagleBone Black, mostrada en la Figura 1.

Floating Point Performance






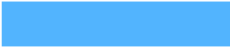
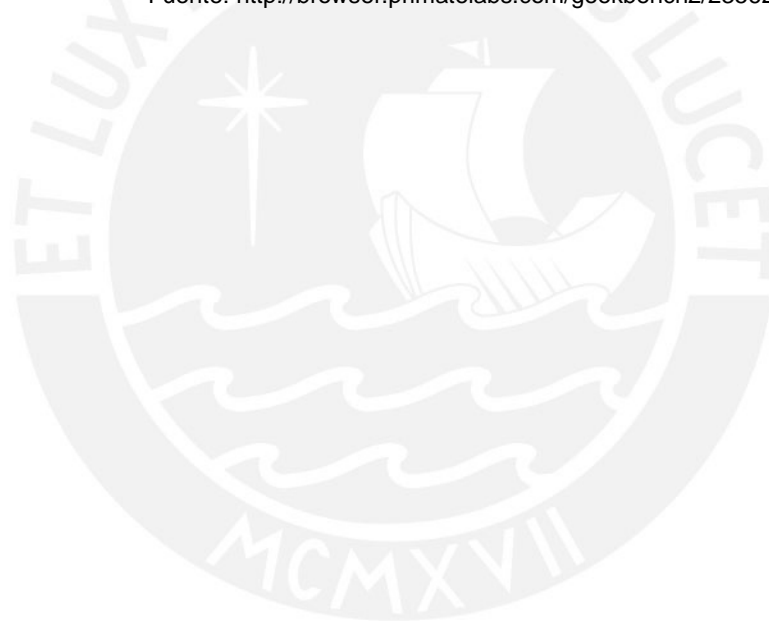
Floating Point	140	
Mandelbrot single-core scalar	67 44.7 Mflops	
Dot Product single-core scalar	66 32.0 Mflops	
LU Decomposition single-core scalar	30 27.3 Mflops	
Primality Test single-core scalar	294 44.1 Mflops	
Sharpen Image single-core scalar	170 397 Kpixels/sec	
Blur Image single-core scalar	218 173 Kpixels/sec	

Figura 1: Capacidad de operación en punto flotante del BeagleBone Black
Fuente: <http://browser.primatelabs.com/geekbench2/2356217>



ANEXO 4. LISTA DE PLANOS

Número	Nombre
L1-A1	Ensamblaje General
L2-A1	Arreglo de platos
L2.1-A3	Eje de tarjetas
L2.2-A3	Plato de tarjetas
L2.3-A3	Separador intermedio
L2.4 -A3	Separador final

