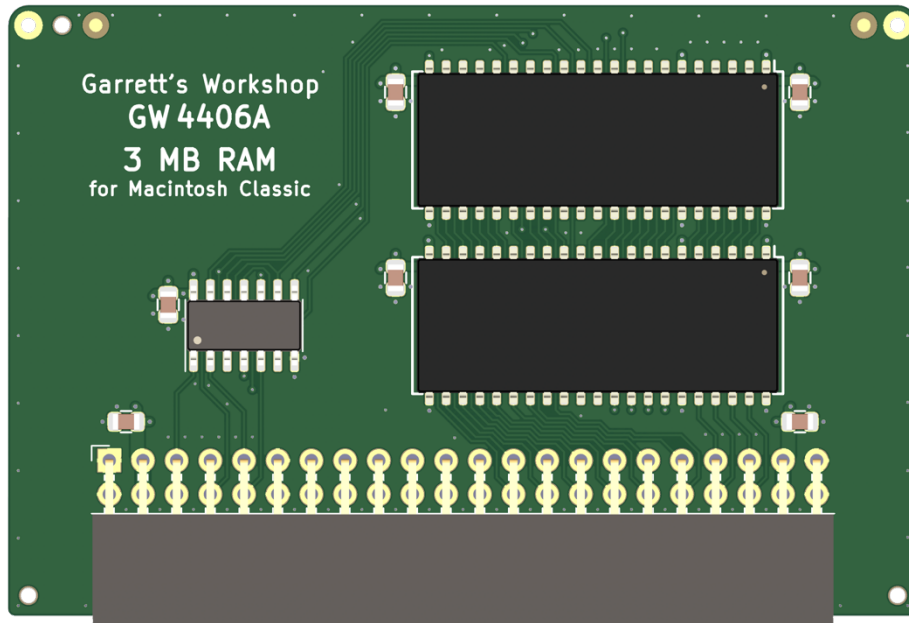


Garrett's Workshop

GW4406A

3 MB RAM Expansion Card for Macintosh Classic

User's Guide



Overview

The GW4406A RAM card provides the Macintosh Classic with 3 MB of additional memory.

Low Power Consumption

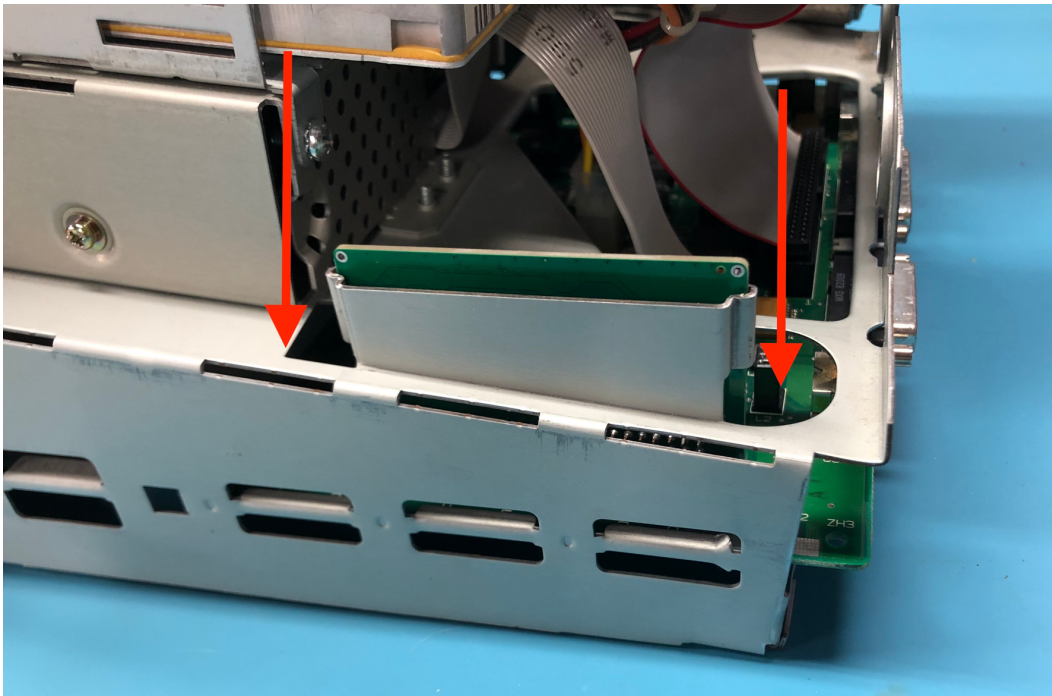
The 3 MB RAM expansion is implemented using just two 16 Mbit RAM chips, reducing power consumption and increasing reliability over other RAM cards which use as many as 24 chips.

Open-Source Design

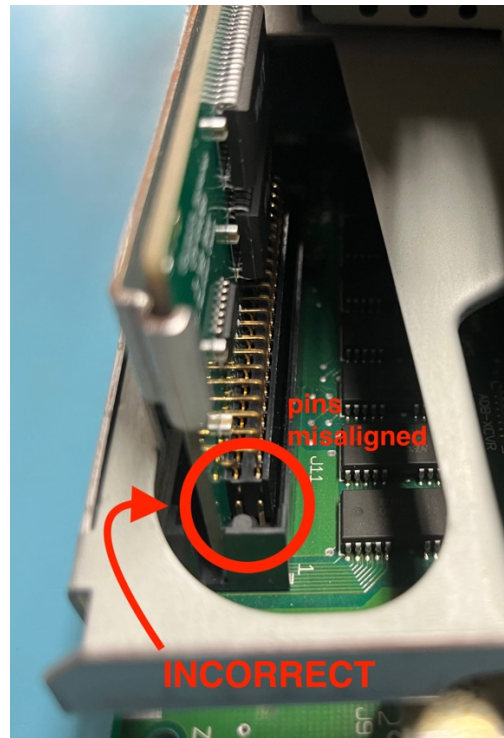
GW4406A's design is fully open-source. The schematics and board layouts are all freely available for commercial and noncommercial use. To download the design files, visit the Garrett's Workshop GitHub page: <https://github.com/garrettsworkshop>

Installation

GW4406A is installed in the Macintosh Classic's RAM expansion slot. With the Macintosh Classic board fully inserted in the chassis, slide the RAM card down like so:



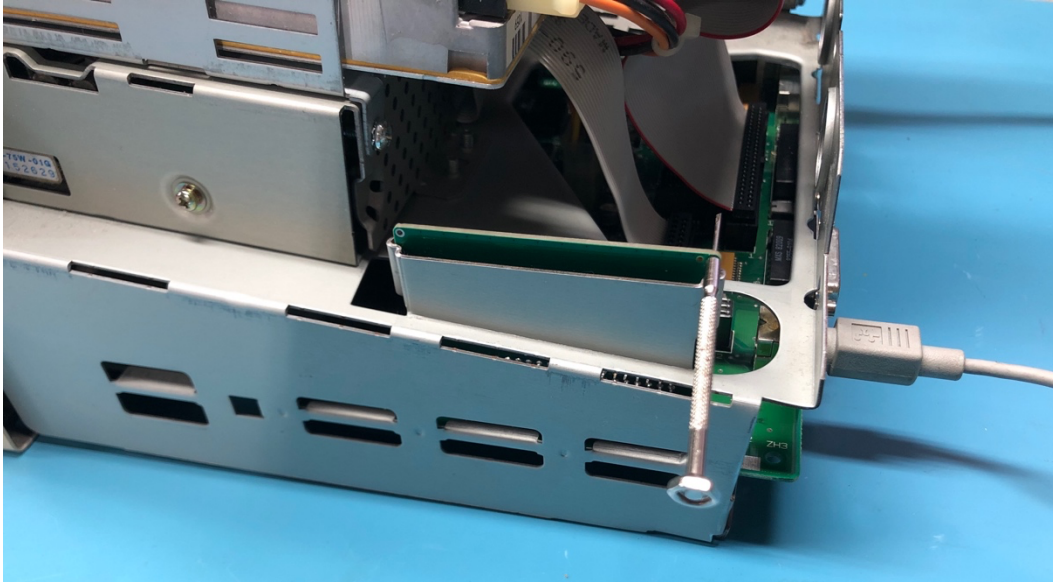
Ensure that the card is aligned correctly with the connector on the motherboard. Make sure the card is aligned correctly with the pins on the motherboard's slot such that all the pins are inserted into the card's connector. Correct and incorrect installation pictures are shown below:



After ensuring that the card is correctly aligned with the connector pins on the Macintosh motherboard, press firmly downward to secure the RAM card in place.

Removal

Because of its low profile, the GW4406A RAM card may be difficult to remove. To remove the card, insert a small screwdriver in the mounting holes on top of the board like so:



Pull the board upward using the screwdriver, alternating between the two mounting holes, until the board is loose in the socket and can be removed by hand.

Technical Specifications

Physical Dimensions

Parameter	Value
Height	45.974 mm \pm 0.2 mm
Width	68.580 mm \pm 0.2 mm
Thickness	< 8 mm
Weight	20 g \pm 2 g

Electrical Specifications

Specifications are valid over temperature range of 0 °C – 85 °C and $V_{CC} = 4.5 \text{ V} - 5.5 \text{ V}$.

Parameter	Value	Conditions
$V_{IH_{min}}$	2.0 V	
$V_{IL_{max}}$	0.8 V	
$V_{OH_{min}}$	2.4 V	$I_{OH} = -4 \text{ mA}$
$V_{OL_{max}}$	0.5 V	$I_{OL} = 4 \text{ mA}$
$C_{IO_{max}}$	25 pF	all Mac Classic RAM bus signals
$I_{CC_{max}}$	200 mA	