

Extracted from:

Build an Awesome PC, 2014 Edition

Easy Steps to Construct the Machine You Need

This PDF file contains pages extracted from *Build an Awesome PC, 2014 Edition*, published by the Pragmatic Bookshelf. For more information or to purchase a paperback or PDF copy, please visit <http://www.pragprog.com>.

Note: This extract contains some colored text (particularly in code listing). This is available only in online versions of the books. The printed versions are black and white. Pagination might vary between the online and printed versions; the content is otherwise identical.

Copyright © 2014 The Pragmatic Programmers, LLC.

All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior consent of the publisher.

The Pragmatic Bookshelf

Dallas, Texas • Raleigh, North Carolina



Build an *Awesome PC*

2014 Edition

Easy Steps to Construct
the Machine You Need



Mike Riley

Edited by Jacquelyn Carter

Build an Awesome PC, 2014 Edition

Easy Steps to Construct the Machine You Need

Mike Riley

The Pragmatic Bookshelf

Dallas, Texas • Raleigh, North Carolina



Many of the designations used by manufacturers and sellers to distinguish their products are claimed as trademarks. Where those designations appear in this book, and The Pragmatic Programmers, LLC was aware of a trademark claim, the designations have been printed in initial capital letters or in all capitals. The Pragmatic Starter Kit, The Pragmatic Programmer, Pragmatic Programming, Pragmatic Bookshelf, PragProg and the linking *g* device are trademarks of The Pragmatic Programmers, LLC.

Every precaution was taken in the preparation of this book. However, the publisher assumes no responsibility for errors or omissions, or for damages that may result from the use of information (including program listings) contained herein.

Our Pragmatic courses, workshops, and other products can help you and your team create better software and have more fun. For more information, as well as the latest Pragmatic titles, please visit us at <http://pragprog.com>.

The team that produced this book includes:

Jacquelyn Carter (editor)
Candace Cunningham (copyeditor)
David J Kelly (typesetter)
Janet Furlow (producer)
Ellie Callahan (support)

For international rights, please contact rights@pragprog.com.

Copyright © 2014 The Pragmatic Programmers, LLC.

All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior consent of the publisher.

Printed in the United States of America.

ISBN-13: 978-1-941222-17-1

Encoded using the finest acid-free high-entropy binary digits.

Book version: P1.0—May 2014

Installing the Graphics Card

The GTX 780 Ti is a big card, taking up two expansion-card bays on the motherboard. It also plugs into the long PCIe slot, of which there are three on the Maximus VI. The two PCIe slots closest to the CPU communicate with the card at the fastest speeds possible, while the PCIe slot farthest from the CPU runs at half the speed of the other two long PCIe slots. Keep this in mind if you ever want to buy a second GTX 780 Ti and want to daisy-chain them together to make what NVIDIA calls a Scalable Link Interface (SLI) connection.

Since we're going to start with a single graphics card, we will install it in the PCIe slot closest to the CPU on the motherboard. This not only makes it easier for us to install a second GTX 780 Ti later on, but it also keeps the cooling fan on the side of the card unobstructed.

Before inserting the card into the long PCIe slot, remove the two expansion-slot covers on the PC case that match where the graphics card will be mounted. This should be the second and third slot covers, as shown in the following figure and in [Figure 62, Remove the second and third slot covers to accommodate the graphics card, on page 8.](#)

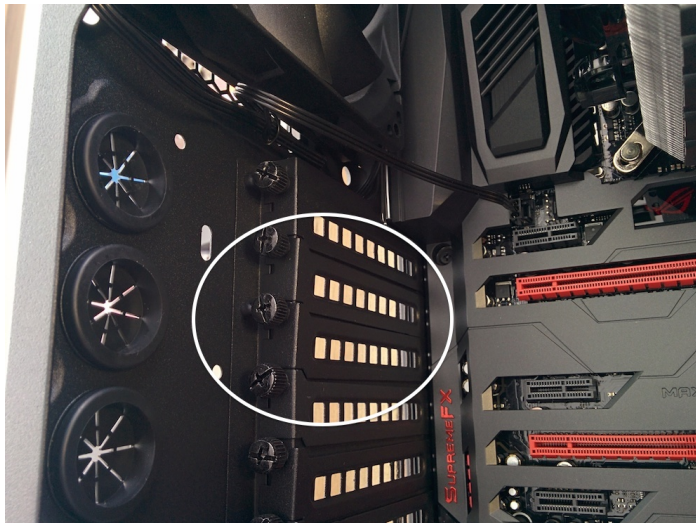


Figure 61—These are the PC-case slot covers.

With the card-slot covers removed, prepare the PCIe slot for insertion by making sure the expansion slot's white locking tab is slid back to accommodate the three-sectioned connector on the bottom of the graphics card.



Figure 62—Remove the second and third slot covers to accommodate the graphics card.



Position the video ports on the front of the card so they are accessible through the two slots we removed the covers from. Align the connector on the bottom of the card with the PCIe slot. Then slowly yet firmly seat the card into the slot.

You should feel and hear the slot's plastic locking tab click into place, securing the card to the expansion slot. Refer to [Figure 63, The GTX 780 Ti card mounted in the PCIe expansion slot on the motherboard, on page 9](#) for how the card should look once properly mounted in the expansion slot.

Powering the Graphics Card

As mentioned earlier, the GTX 780 Ti is power-hungry. It has to be in order to deliver the high frame rates and real-time rendering pipelines it can achieve. It also has a large cooling fan to keep the GPU's temperature in check. Therefore, in addition to the power it receives via its PCIe connection to the motherboard, the GTX 780 Ti has two additional power connectors (an eight-pin and a six-pin) on the top back of the card, as shown in [Figure 64, The GeForce GTX 780 Ti requires a lot of electricity to power it, on page 9](#).

Grab the two appropriate six- and eight-pin cable types from the bundle included with the RM850. Plug them into the case and then into the PSU, as shown in [Figure 65, The GeForce GTX is plugged in, powered, and ready to run, on page 9](#).

Now that the graphics card's data and power connections are hooked up, we can close the PC case by putting the two sides back on. Recall that we have to plug the side fan into the available four-pin power adapter mentioned



Figure 63—The GTX 780 Ti card mounted in the PCIe expansion slot on the motherboard



Figure 64—The GeForce GTX 780 Ti requires a lot of electricity to power it.



Figure 65—The GeForce GTX is plugged in, powered, and ready to run.

toward the conclusion of the section [*Installing the CPU-Cooling Unit*](#), on page [?](#). With the side fan powered and the PC case closed up, we can connect a display to the graphics card to see the beautiful imagery that the GTX 780 Ti generates.