

GPU Fluoro Prerequisite Installation Manual

OPERATING DOCUMENTATION



5344368-1EN
Rev 5
©2009- 2017 GE Company. All
rights reserved.

LEGAL NOTES

TRADEMARKS

Adobe, the Adobe logo, Acrobat, the Acrobat logo, Exchange, and PostScript are trademarks of Adobe Systems Incorporated or its subsidiaries and may be registered in certain jurisdictions.

Microsoft is a registered trademark and Windows is a trademark of Microsoft Corporation.

All other products and their name brands are trademarks of their respective holders.

COPYRIGHTS

All Material Copyrighted (c) 2009~2017 by the GE Company, All rights reserved.

Page Left Intentionally Blank

IMPORTANT PRECAUTIONS

LANGUAGE

<p>ПРЕДУПРЕЖДЕНИЕ (BG)</p>	<ul style="list-style-type: none"> • ТОВА УПЪТВАНЕ ЗА РАБОТА Е НАЛИЧНО САМО НА АНГЛИЙСКИ ЕЗИК. • АКО ДОСТАВЧИКЪТ НА УСЛУГАТА НА КЛИЕНТА ИЗИСКА ЕЗИК, РАЗЛИЧЕН ОТ АНГЛИЙСКИ, ЗАДЪЛЖЕНИЕ НА КЛИЕНТА Е ДА ОСИГУРИ ПРЕВОД. • НЕ ИЗПОЛЗВАЙТЕ ОБОРУДВАНЕТО ПРЕДИ ДА СТЕ СЕ КОНСУЛТИРАЛИ И РАЗБРАЛИ УПЪТВАНЕТО ЗА РАБОТА. • НЕСПАЗВАНЕТО НА ТОВА ПРЕДУПРЕЖДЕНИЕ МОЖЕ ДА ДОВЕДЕ ДО НАРАНЯВАНЕ НА ДОСТАВЧИКА НА УСЛУГАТА, ОПЕРАТОРА ИЛИ ПАЦИЕНТ В РЕЗУЛТАТ НА ТОКОВ УДАР ИЛИ МЕХАНИЧНА ИЛИ ДРУГА ОПАСНОСТ.
<p>警告 (ZH-CN)</p>	<ul style="list-style-type: none"> • 本维修手册仅提供英文版本。 • 如果维修服务提供商需要非英文版本，客户需自行提供翻译服务。 • 未详细阅读和完全理解本维修手册之前，不得进行维修。 • 忽略本警告可能对维修人员，操作员或患者造成触电、机械伤害或其他形式的伤害。
<p>警告 (ZH-HK)</p>	<p>本服務手冊僅提供英文版本。</p> <ul style="list-style-type: none"> • 倘若客戶的服務供應商需要英文以外之服務手冊，客戶有責任提供翻譯服務。 • 除非已參閱本服務手冊及明白其內容，否則切勿嘗試維修設備。 • 不遵從本警告或會令服務供應商、網絡供應商或病人受到觸電、機械性或其他危險。
<p>警告 (ZH-TW)</p>	<p>本維修手冊僅有英文版。</p> <ul style="list-style-type: none"> • 若客戶的維修廠商需要英文版以外的語言，應由客戶自行提供翻譯服務。 • 請勿試圖維修本設備，除非 您已查閱並瞭解本維修手冊。 • 若未留意本警告，可能導致維修廠商、操作員或病患因觸電、機械或其他危險而受傷。
<p>UPOZORENJE (HR)</p>	<p>Ovaj servisni priručnik dostupan je na engleskom jeziku.</p> <ul style="list-style-type: none"> • Ako davatelj usluge klijenta treba neki drugi jezik, klijent je dužan osigurati prijevod. • Ne pokušavajte servisirati opremu ako niste u potpunosti pročitali i razumjeli ovaj servisni priručnik. • Zanimarite li ovo upozorenje, može doći do ozljede davatelja usluge, operatera ili pacijenta uslijed strujnog udara, mehaničkih ili drugih rizika.

<p>VÝSTRAHA (CS)</p>	<ul style="list-style-type: none"> • Tento provozní návod existuje pouze v anglickém jazyce. • V případě, že externí služba zákazníkům potřebuje návod v jiném jazyce, je zajištění překladu do odpovídajícího jazyka úkolem zákazníka. • Nesnažte se o údržbu tohoto zařízení, aniž byste si přečetli tento provozní návod a pochopili jeho obsah. • V případě nedodržování této výstrahy může dojít k poranění pracovníka prodejního servisu, obslužného personálu nebo pacientů vlivem elektrického proudu, respektive vlivem mechanických či jiných rizik.
<p>ADVARSEL (DA)</p>	<ul style="list-style-type: none"> • Denne servicemanual findes kun på engelsk. • Hvis en kundes tekniker har brug for et andet sprog end engelsk, er det kundens ansvar at sørge for oversættelse. • Forsøg ikke at servicere udstyret medmindre denne servicemanual har været konsulteret og er forstået. • Manglende overholdelse af denne advarsel kan medføre skade på grund af elektrisk, mekanisk eller anden fare for teknikerens, operatørens eller patientens.
<p>WAARSCHUWING (NL)</p>	<ul style="list-style-type: none"> • Deze onderhoudshandleiding is enkel in het Engels verkrijgbaar. • Als het onderhoudspersoneel een andere taal vereist, dan is de klant verantwoordelijk voor de vertaling ervan. • Probeer de apparatuur niet te onderhouden voordat deze onderhoudshandleiding werd geraadpleegd en begrepen is. • Indien deze waarschuwing niet wordt opgevolgd, zou het onderhoudspersoneel, de operator of een patiënt gewond kunnen raken als gevolg van een elektrische schok, mechanische of andere gevaren.
<p>WARNING (EN)</p>	<ul style="list-style-type: none"> • This Service Manual is available in English only. • If a customer's service provider requires a language other than English, it is the customer's responsibility to provide translation services. • Do not attempt to service the equipment unless this service manual has been consulted and is understood. • Failure to heed this warning may result in injury to the service provider, operator, or patient, from electric shock or from mechanical or other hazards.
<p>HOIATUS (ET)</p>	<ul style="list-style-type: none"> • Käesolev teenindusjuhend on saadaval ainult inglise keeles. • Kui klienditeeninduse osutaja nõuab juhendit inglise keelest erinevas keeles, vastutab klient tõlketeenuse osutamise eest. • Ärge üritage seadmeid teenindada enne eelnevalt käesoleva teenindusjuhendiga tutvumist ja sellest aru saamist. • Käesoleva hoiatuse eiramine võib põhjustada teenuseosutaja, operaatori või patsiendi vigastamist elektrilöögi, mehaanilise või muu ohu tagajärjel.
<p>VAROITUS (FI)</p>	<ul style="list-style-type: none"> • Tämä huolto-ohje on saatavilla vain englanniksi. • Jos asiakkaan huoltohenkilöstö vaatii muuta kuin englanninkielistä materiaalia, tarvittavan käännöksen hankkiminen on asiakkaan vastuulla. • Älä yritä korjata laitteistoa ennen kuin olet varmasti lukenut ja ymmärtänyt tämän huolto-ohjeen. • Mikäli tätä varoitusta ei noudateta, seurauksena voi olla huoltohenkilöstön, laitteiston käyttäjän tai potilaan vahingoittuminen sähköiskun, mekaanisen vian tai muun vaaratilanteen vuoksi.

<p>ATTENTION (FR)</p>	<ul style="list-style-type: none"> • Ce manuel de service n'est disponible qu'en anglais. • Si le technicien du client a besoin de ce manuel dans une autre langue que l'anglais, c'est au client qu'il incombe de le faire traduire. • Ne pas tenter d'intervenir sur les équipements tant que le manuel service n'a pas été consulté et compris • Le non-respect de cet avertissement peut entraîner chez le technicien, l'opérateur ou le patient des blessures dues à des dangers électriques, mécaniques ou autres.
<p>WARNUNG (DE)</p>	<ul style="list-style-type: none"> • Diese Serviceanleitung existiert nur in Englischer Sprache. • Falls ein fremder Kundendienst eine andere Sprache benötigt, ist es aufgabe des Kunden für eine Entsprechende Übersetzung zu sorgen. • Versuchen Sie nicht diese Anlage zu warten, ohne diese Serviceanleitung gelesen und verstanden zu haben. • Wird diese Warnung nicht beachtet, so kann es zu Verletzungen des Kundendiensttechnikers, des Bedieners oder des Patienten durch Stromschläge, Mechanische oder Sonstige gefahren kommen.
<p>ΠΡΟΕΙΔΟΠΟΙΗΣΗ (EL)</p>	<ul style="list-style-type: none"> • Το παρόν εγχειρίδιο σέρβις διατίθεται στα αγγλικά μόνο. • Εάν το άτομο παροχής σέρβις ενός πελάτη απαιτεί το παρόν εγχειρίδιο σε γλώσσα εκτός των αγγλικών, αποτελεί ευθύνη του πελάτη να παρέχει υπηρεσίες μετάφρασης. • Μην επιχειρήσετε την εκτέλεση εργασιών σέρβις στον εξοπλισμό εκτός εάν έχετε συμβουλευτεί και έχετε κατανοήσει το παρόν εγχειρίδιο σέρβις. • Εάν δε λάβετε υπόψη την προειδοποίηση αυτή, ενδέχεται να προκληθεί τραυματισμός στο άτομο παροχής σέρβις, στο χειριστή ή στον ασθενή από ηλεκτροπληξία, μηχανικούς ή άλλους κινδύνους.
<p>FIGYELMEZTETÉS (HU)</p>	<ul style="list-style-type: none"> • Ezen karbantartási kézikönyv kizárólag angol nyelven érhető el. • Ha a vevő szolgáltatója angoltól eltérő nyelvre tart igényt, akkor a vevő felelőssége a fordítás elkészítése. • Ne próbálja elkezdni használni a berendezést, amíg a karbantartási kézikönyvben leírtakat nem értelmezték. • Ezen figyelmeztetés figyelmen kívül hagyása a szolgáltató, működtető vagy a beteg áramütés, mechanikai vagy egyéb veszélyhelyzet miatti sérülését eredményezheti.
<p>AÐVÖRUN (IS)</p>	<ul style="list-style-type: none"> • Þessi þjónustuhandbók er eingöngu fánleg á ensku. • Ef að þjónustuveitandi viðskiptamanns þarfnast annas tungumáls en ensku, er það skylda viðskiptamanns að skaffa tungumálaþjónustu. • Reynið ekki að afgreiða tækið nema að þessi þjónustuhandbók hefur verið skoðuð og skilin. • Brot á sinna þessari aðvörun getur leitt til meiðsla á þjónustuveitanda, stjórnanda eða sjúklings frá raflosti, vélrænu eða öðrum áhættum.
<p>AVVERTENZA (IT)</p>	<ul style="list-style-type: none"> • Il presente manuale di manutenzione è disponibile soltanto in inglese. • Se un addetto alla manutenzione richiede il manuale in una lingua diversa, il cliente è tenuto a provvedere direttamente alla traduzione. • Si proceda alla manutenzione dell'apparecchiatura solo dopo aver consultato il presente manuale ed averne compreso il contenuto • Il non rispetto della presente avvertenza potrebbe far compiere operazioni da cui derivino lesioni all'addetto, alla manutenzione, all'utilizzatore ed al paziente per folgorazione elettrica, per urti meccanici od altri rischi.

<p>警告 (JA)</p>	<ul style="list-style-type: none"> このサービスマニュアルには英語版しかありません。 サービスを担当される業者が英語以外の言語を要求される場合、翻訳作業はその業者の責任で行うものとさせていただきます。 このサービスマニュアルを熟読し理解せずに、装置のサービスを行わないでください。 この警告に従わない場合、サービスを担当される方、操作員あるいは患者さんが、感電や機械的又はその他の危険により負傷する可能性があります。
<p>경고 (KO)</p>	<ul style="list-style-type: none"> 본 서비스 지침서는 영어로만 이용하실 수 있습니다. 고객의 서비스 제공자가 영어 이외의 언어를 요구할 경우, 번역 서비스를 제공하는 것은 고객의 책임입니다. 본 서비스 지침서를 참고했고 이해하지 않는 한은 해당 장비를 수리하려고 시도하지 마십시오. 이 경고에 유의하지 않으면 전기 쇼크, 기계상의 혹은 다른 위험으로부터 서비스 제공자, 운영자 혹은 환자에게 위해를 가할 수 있습니다.
<p>BRDINJUMS (LV)</p>	<ul style="list-style-type: none"> Ģī apkalpes rokasgrāmata ir pieejama tikai angļu valodā. Ja klienta apkalpes sniedzējam nepieciešama informācija citā valodā, nevis angļu, klienta pienākums ir nodrošināt tulkošanu. Neveiciet aprīkojuma apkalpi bez apkalpes rokasgrāmatas izlasīšanas un saprašanas. Ģī brīdinājuma neievērošana var radīt elektriskās strāvas trieciena, mehānisku vai citu risku izraisītu traumu apkalpes sniedzējam, operatoram vai pacientam.
<p>ÁSPĖJIMAS (LT)</p>	<ul style="list-style-type: none"> Ėis eksploataavimo vadovas yra prieinamas tik anglų kalba. Jei kliento paslaugų tiekėjas reikalauja vadovo kita kalba – ne anglų, numatyti vertimo paslaugas yra kliento atsakomybė. Nemėginkite atlikti árangos techninės priežiūros, nebent atsipvelgėte á áá eksploataavimo vadovà ir já supratote. Jei neatkreipsite dėmesio á áá perspėjimą, galimi suþalojimai dėl elektros áoko, mechaniniø ar kitø pavojø paslaugø tiekėjui, operatoriui ar pacientui.
<p>ADVARSEL (NO)</p>	<ul style="list-style-type: none"> Denne servicehåndboken finnes bare på engelsk. Hvis kundens serviceleverandør trenger et annet språk, er det kundens ansvar å sørge for oversettelse. Ikke forsøk å reparere utstyret uten at denne servicehåndboken er lest og forstått. Manglende hensyn til denne advarselen kan føre til at serviceleverandøren, operatøren eller pasienten skades på grunn av elektrisk støt, mekaniske eller andre farer.
<p>OSTRZEŻENIE (PL)</p>	<ul style="list-style-type: none"> Niniejszy podręcznik serwisowy dostępny jest jedynie w języku angielskim. Jeśli dostawca usług klienta wymaga języka innego niż angielski, zapewnienie usługi tłumaczenia jest obowiązkiem klienta. Nie próbować serwisować wyposażenia bez zapoznania się i zrozumienia niniejszego podręcznika serwisowego. Niezastosowanie się do tego ostrzeżenia może spowodować urazy dostawcy usług, operatora lub pacjenta w wyniku porażenia elektrycznego, zagrożenia mechanicznego bądź innego.

<p>ATENÇÃO (PT)</p>	<ul style="list-style-type: none"> • Este manual de assistência técnica só se encontra disponível em inglês. • Se qualquer outro serviço de assistência técnica solicitar estes manuais noutra língua, é da responsabilidade do cliente fornecer os serviços de tradução. • Não tente consertar o equipamento sem ter consultado e compreendido este manual de assistência técnica. • O não cumprimento deste aviso pode pôr em perigo a segurança do técnico, do operador ou do paciente devido a choques elétricos, mecânicos ou outros.
<p>ATENȚIE (RO)</p>	<ul style="list-style-type: none"> • Acest manual de service este disponibil numai în limba engleză. • Dacă un furnizor de servicii pentru clienți necesită o altă limbă decât cea engleză, este de datoria clientului să furnizeze o traducere. • Nu încercați să reparați echipamentul decât ulterior consultării și înțelegerii acestui manual de service. • Ignorarea acestui avertisment ar putea duce la rănirea deparatorului, operatorului sau pacientului în urma pericolelor de electrocutare, mecanice sau de altă natură.
<p>ОСТОРОЖНО! (RU)</p>	<ul style="list-style-type: none"> • Данное руководство по обслуживанию предлагается только на английском языке. • Если сервисному персоналу клиента необходимо руководство не на английском, а на каком-то другом языке, клиенту следует самостоятельно обеспечить перевод. • Перед обслуживанием оборудования обязательно обратитесь к данному руководству и поймите изложенные в нем сведения. • Несоблюдение требований данного предупреждения может привести к тому, что специалист по обслуживанию, оператор или пациент получат удар электрическим током, механическую травму или другое повреждение.
<p>UPOZORENJE (SR)</p>	<p>Ovo servisno uputstvo je dostupno samo na engleskom jeziku.</p> <ul style="list-style-type: none"> • Ako klijentov serviser zahteva neki drugi jezik, klijent je dužan da obezbedi prevodilačke usluge. • Ne pokušavajte da opravite uređaj ako niste pročitali i razumeli ovo servisno uputstvo. • Ne pokušavajte da opravite uređaj ako niste pročitali i razumeli ovo servisno uputstvo.
<p>UPOZORNENIE (SK)</p>	<ul style="list-style-type: none"> • Tento návod na obsluhu je k dispozícii len v angličtine. • Ak zákazníkovi poskytovateľ služieb vyžaduje iný jazyk ako angličtinu, poskytnutie prekladateľských služieb je zodpovednosťou zákazníka. • Nepokúšajte sa o obsluhu zariadenia skôr, ako si neprečítate návod na obsluhu a neporozumiete mu. • Zanedbanie tohto upozornenia môže vyústiť do zranenia poskytovateľa služieb, obsluhujúcej osoby alebo pacienta elektrickým prúdom, do mechanického alebo iného nebezpečenstva.
<p>ATENCIÓN (ES)</p>	<ul style="list-style-type: none"> • Este manual de servicio sólo existe en inglés. • Si el encargado de mantenimiento de un cliente necesita un idioma que no sea el inglés, el cliente deberá encargarse de la traducción del manual. • No se deberá dar servicio técnico al equipo, sin haber consultado y comprendido este manual de servicio. • La no observancia del presente aviso puede dar lugar a que el proveedor de servicios, el operador o el paciente sufran lesiones provocadas por causas eléctricas, mecánicas o de otra naturaleza.

<p>VARNING (SV)</p>	<ul style="list-style-type: none"> • Den här servicehandboken finns bara tillgänglig på engelska. • Om en kunds servicetekniker har behov av ett annat språk än engelska ansvarar kunden för att tillhandahålla översättningstjänster. • Försök inte utföra service på utrustningen om du inte har läst och förstår den här servicehandboken. • Om du inte tar hänsyn till den här varningen kan det resultera i skador på serviceteknikern, operatören eller patienten till följd av elektriska stötar, mekaniska faror eller andra faror.
<p>OPOZORILO (SL)</p>	<p>Ta servisni priročnik je na voljo samo v angleškem jeziku.</p> <ul style="list-style-type: none"> • Če ponudnik storitve stranke potrebuje priročnik v drugem jeziku, mora stranka zagotoviti prevod. • Ne poskušajte servisirati opreme, če tega priročnika niste v celoti prebrali in razumeli. • Če tega opozorila ne upoštevate, se lahko zaradi električnega udara, mehanskih ali drugih nevarnosti poškoduje ponudnik storitev, operater ali bolnik.
<p>DIKKAT (TR)</p>	<ul style="list-style-type: none"> • Bu servis kilavuzunun sadece ingilizcesi mevcuttur. • Eğer müşteri teknisyeni bu kilavuzu ingilizce dışında bir başka lisandan talep ederse, bunu tercüme ettirmek müşteriye düşer. • Servis kilavuzunu okuyup anlamadan ekipmanlara müdahale etmeyiniz. • Bu uyariya uyulmaması, elektrik, mekanik veya diğer tehlikelerden dolayı teknisyen, operatör veya hastanın yaralanmasına yol açabilir.

DAMAGE IN TRANSPORTATION

All packages should be closely examined at time of delivery. If damage is apparent, have notation "damage in shipment" written on all copies of the freight or express bill before delivery is accepted or "signed for" by a General Electric representative or a hospital receiving agent. Whether noted or concealed, damage MUST be reported to the carrier immediately upon discovery, or in any event, within 14 days after receipt, and the contents and containers held for inspection by the carrier. A transportation company will not pay a claim for damage if an inspection is not requested within this 14 day period.

To file a report:

- Call 1-800-548-3366 and use option 8.
- Fill out a report on <http://us44hdd21/sctq/InstallFulfill/InstalFulfillment.htm>
- Contact your local service coordinator for more information on this process.

Rev. Jan. 5, 2005

CERTIFIED ELECTRICAL CONTRACTOR STATEMENT

All electrical Installations that are preliminary to positioning of the equipment at the site prepared for the equipment shall be performed by licensed electrical contractors. In addition, electrical feeds into the Power Distribution Unit shall be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations and testing shall be performed by qualified GE Company personnel. The products involved (and the accompanying electrical installations) are highly sophisticated, and special engineering competence is required. In performing all electrical work on these products, GE will use its own specially trained field engineers. All of GE's electrical work on these products will comply with the requirements of the applicable electrical codes.

The purchaser of GE equipment shall only utilize qualified personnel (i.e., GE's field engineers, personnel of third-party service companies with equivalent training, or licensed electricians) to perform electrical servicing on the equipment.

IMPORTANT...X-RAY PROTECTION

X-ray equipment if not properly used may cause injury. Accordingly, the instructions herein contained should be thoroughly read and understood by everyone who will use the equipment before you attempt to place this equipment in operation. The GE Company, will be glad to assist and cooperate in placing this equipment in use.

Although this apparatus incorporates a high degree of protection against x-radiation other than the useful beam, no practical design of equipment can provide complete protection. Nor can any practical design compel the operator to take adequate precautions to prevent the possibility of any persons carelessly exposing themselves or others to radiation.

It is important that anyone having anything to do with x-radiation be properly trained and fully acquainted with the recommendations of the National Council on Radiation Protection and Measurements as published in NCRP Reports available from NCRP Publications, 7910 Woodmont Avenue, Room 1016, Bethesda, Maryland 20814, and of the International Commission on Radiation Protection, and take adequate steps to protect against injury.

The equipment is sold with the understanding that the GE Company, its agents, and representatives have no responsibility for injury or damage which may result from improper use of the equipment.

Various protective materials and devices are available. It is urged that such materials or devices be used.

LITHIUM BATTERY CAUTIONARY STATEMENTS

CAUTION



Risk of Explosion.

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

ATTENTION



Danger d'Explosion

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

OMISSIONS & ERRORS

Customers, please contact your GE Sales or Service representatives.

GE personnel, please use the Healthcare PQR Process to report all omissions, errors, and defects in this publication.

Revision History

Revision	Date	Reason for change
5	01/24/17	Add new GPU installation procedure for NIO16 with Z840 PC.
4	02/10/15	Add new GPU installation procedure for NIO16 with Z820 PC.
3	06/28/13	Added GPU installation procedure for NIO console with Z800 PC.
2	08/24/09	Revised procedure.
1	06/18/09	Initial Release.

Page Left Intentionally Blank

Table of Contents

Preface

Publication Conventions 17

Section 1.0

Safety & Hazard Information 17

1.1 Text and Character Representation..... 17
1.2 Graphical Representation 18

Section 2.0

Publication Conventions 19

2.1 General Paragraph and Character Styles..... 19
2.2 Page Layout..... 19
2.3 Computer Screen Output/Input Text Character Styles 20
2.4 Buttons, Switches and Keyboard Inputs (Hard & Soft Keys)..... 20

Chapter 1

Introduction..... 21

Section 1.0

Flowchart 21

Section 2.0

Material List 22

Chapter 2

Installation Procedure..... 23

Section 1.0

Overview 23

Section 2.0

Procedure..... 23

2.1 Power-Off (Shutdown) 23
2.2 GPU Card Installation 24
 2.2.1 GPU Card Installation for TIO Console..... 24
 2.2.2 GPU Card Installation for NIO16 Console with Z800 Host Computer 29
 2.2.3 GPU Card Installation for NIO16 Console with Z820 Host Computer 35
 2.2.4 GPU Card Installation for NIO16 Console with Z840 Host Computer 42
2.3 Check GPU Card 50
 2.3.1 GPU Card Inspection - Quadro FX4800 50
 2.3.2 GPU Card Inspection - FirePro W7000 51
 2.3.3 GPU Card Inspection - NVIDIA Quadro M5000..... 52
2.4 Power On..... 52
2.5 Install option (if required) 52

Section 3.0

Finalization..... 52

Page Left Intentionally Blank

Preface

Publication Conventions

Purpose: Standardize conventions for representing information in a uniform way of communicating information to a reader in a consistent manner. Conventions are used so that the reader can easily recognize the actions or decisions that must be made. There are a number of character and paragraph styles used in this publication to accomplish this task. Please become familiar with them before proceeding forward.

Section 1.0

Safety & Hazard Information

1.1 Text and Character Representation

Within this publication, different paragraph and character styles have been used to indicate potential hazards. Paragraph prefixes, such as hazard, caution, danger and warning, are used to identify important safety information. Text (Hazard) styles are applied to the paragraph contents that is applicable to each specific safety statement. Words describe the type of potential hazard that may be encountered and are placed immediately before the paragraph it modifies. Safety information will normally include:

- Type of potential Hazard
- Nature of potential injury
- Causative condition
- How to avoid or correct the causative condition

EXAMPLES OF HAZARD STATEMENTS USED

It's important that you read and understand hazard statements, and not just ignore them.



**DANGER
SEVERE
PERSONAL
INJURY**

DANGER IS USED WHEN A HAZARD EXISTS WHICH WILL CAUSE SEVERE PERSONAL INJURY OR DEATH IF INSTRUCTIONS ARE IGNORED. THEY CAN INCLUDE:


- **ELECTROCUTION**
- **CRUSHING**
- **RADIATION**




**WARNING
SERIOUS
PERSONAL
INJURY**

WARNING IS USED WHEN A HAZARD EXISTS WHICH COULD OR CAN CAUSE SERIOUS PERSONAL INJURY OR DEATH IF INSTRUCTIONS ARE IGNORED. THEY CAN INCLUDE:

- **POTENTIAL FOR SHOCK**
- **EXPOSED WIRES**
- **FAILURE TO TAG AND LOCKOUT SYSTEM POWER COULD ALLOW FOR UN-COMMANDED MOTION.**


 **CAUTION**
Minor Personal Injury
Caution is used when a hazard exists which can or could cause minor injury to self or others if instructions are ignored. They include for example:










- Loss of critical patient data
- Crush or pinch points
- Sharp objects

 **NOTICE**
Property Damage Only
Notice is used when a hazard is present that can cause property damage but has absolutely no personal injury risk. They can include:

- Disk drive will be destroyed
- Internal mechanical damage, such as to the x-ray tube
- Coasting the rotor through resonance.

1.2 Graphical Representation

Important information will always be preceded by the exclamation point  contained within a triangle, as seen throughout the Preface chapter. In addition to text, several different graphical icons (symbols) may be used to make you aware of specific types of hazards that could possibly cause harm.

<p>ELECTRICAL</p>  <p>LASER</p>  <p>LASER LIGHT</p>	<p>HAZARDS MECHANICAL</p>  <p>HEAT</p> 	<p>RADIATION</p>  <p>PINCH</p> 
<p>AVOID STATIC ELECTRICITY</p> 	<p>PROCEDURAL TAG AND LOCK OUT</p> 	<p>WEAR EYE PROTECTION</p>  <p>EYE PROTECTION</p>

Section 2.0 Publication Conventions

2.1 General Paragraph and Character Styles

Prefixes are used to highlight important non-safety related information. Paragraph prefixes (such as purpose, example, comment or note) are used to identify important but non-safety related information. Text styles are also applied to text within each paragraph modified by the specific prefix.

EXAMPLES OF PREFIXES USED FOR GENERAL INFORMATION

Purpose: Introduces and provides meaning as to the information contained within the chapter, section or subsection, Such as used at the beginning this chapter for example.

Note: Conveys information that should be considered important to the reader.

Example: Used to make the reader aware that the paragraph(s) that follow are examples of information possibly stated previously.

Comment: Represents "additional" information that may or may not be relevant to your situation.

2.2 Page Layout

The diagram illustrates the layout of two pages from a manual. The left page is labeled 'Publication Part Number & Revision Number' and the right page is labeled 'Publication Title'. Both pages have a header containing 'GE MICROWAVE SYSTEMS' and 'ZEUS REMOTE INTERCOM X BOARD'. The left page contains sections 3.2.2 and 3.2.3, with a 'DANGER' symbol and a 'NOTE' symbol. The right page contains sections 3.2.4, 3.2.5, and 3.2.7, with a diagram of the 'ZEUS REMOTE INTERCOM X BOARD'. Callouts point to the header information on both pages and to specific symbols and text within the content.

The current section and its title are always shown in the footer of the left (even) page.

An exclamation point in a triangle is used to indicate important information to the user.

Paragraphs preceded by **Alphanumeric** characters (e.g. numbers) contain information that must be followed in a **specific order**.

The current chapter and its title are always shown in the footer of the right (odd) page.

Paragraphs preceded by a **symbol** (e.g. bullets) contain information that has **no specific order**.

Headers and footers in this publication are designed to allow you to quickly identify your location. The document's part number and revision number appears in every header on every page. Odd

numbered page footers indicate the current chapter, its title and current page number. Even page footers show the current section and its title, as well current page number.

2.3 Computer Screen Output/Input Text Character Styles

Within this publication, mono-spaced character styles (fonts) are used to indicate computer text that's either screen input and output. Mono spaced fonts, such as courier, are used to indicate text direction. When you type at your keyboard, you are generating computer input. Occasionally you will see the math operators "greater than" and "less than" symbols used to indicate the start and finish of variable output. When reading text generated by the computer, you are reading it as computer generated output. In addition to direction, characters are italicized (e.g. *italics*) to indicate information specific to your system or site.

Example:
Fixed Output

This paragraph's fonts represents computer generated screen "fixed" output. It's output is fixed from the sense that it does not vary from application to application. It's the most commonly used style used to indicate filenames, paths and text that does not change from system to system. The character style used is a fixed width such as courier.

Example:
Variable Output

This paragraph's font represents computer screen output that is "variable". Its used to represent output that varies from application to application or system to system. Variable output is sometimes found placed between greater than and lesser than operators for clarification. For example: <variable_ouput> or <3.45.120.3>. In both cases, the < and > operators are not part of the actual input.

Example:
Fixed Input

This paragraph's font represents fixed input. It's computer input that is typed-in via the keyboard. Typed input that does not vary from application to application or system to system. Fixed text the user is required to supply as input. For example: cd /usr/3p

Example:
Variable Input

This paragraph's font represents computer input that can vary from application to application or system to system. With variable text, the user is required to supply system dependent input or information. Variable input sometimes is placed between greater-than and less-than operators. For example: <variable_input>. In these cases, the (<>) operators would be dropped prior to input. For example: ypcat hosts | grep <3.45.120.3> would be typed into the computer as ypcat hosts | grep 3.45.120.3 without the greater-than and less-than operators.

2.4 Buttons, Switches and Keyboard Inputs (Hard & Soft Keys)

Different character styles are used to indicate actions requiring the reader to press either a hard or soft button, switch or key. Physical hardware, such as buttons and switches, are called hard keys because they are hard wired or mechanical in nature. A keyboard or on/off switch would be a hard key. Software or computer generated buttons are called soft keys because they are software generated. Software driven menu buttons are an example of such keys. Soft and hard keys are represented differently in this publication.

Example:
Hard Keys

A power switch **ON/OFF** or a keyboard key like **ENTER** is indicated by applying a character style that uses both over and under-lined bold text that is bold. This is a hard key.

Example:
Soft Keys

Whereas the computer MENU button that you would click with your mouse or touch with your hand uses over and under-lined regular text. This is a soft key.

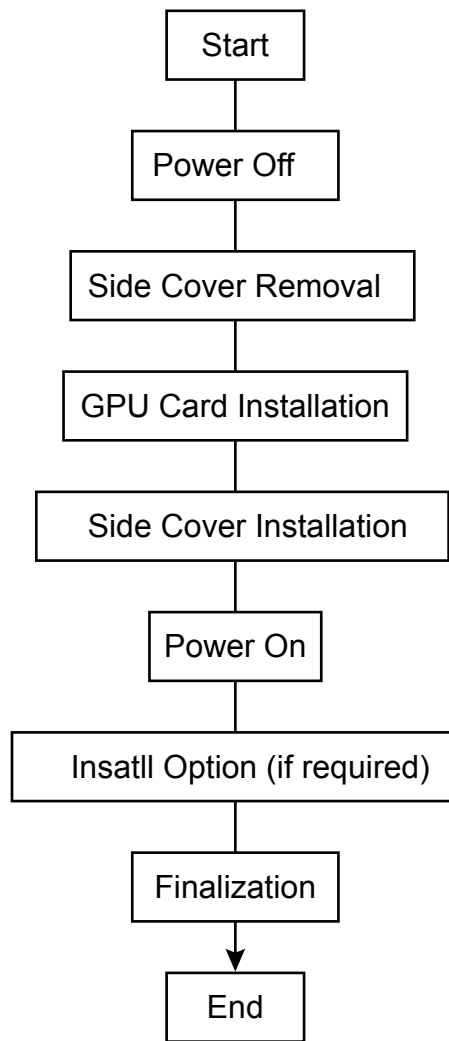
END OF SECTION

Chapter 1

Introduction

Section 1.0

Flowchart



Section 2.0 Material List

MARK	NUMBER	QTY	DESCRIPTION/NAME
1	5330953-8	1	Nvidia FX4800C PCI-E Graphics Card
2	5340994	1	Labels for GPU Fluoro Prerequisite Beijing
	5350519	1	Labels for GPU Fluoro Prerequisite Hino
3	5344368-1EN	1	GPU Fluoro Prerequisite Installation Manual

Table 1-1 GPU Package, GEHW (5340983)

MARK	NUMBER	QTY	DESCRIPTION/NAME
1	6450000-109	1	AMD FirePro W7000 Graphic Card
2	5340994-3	1	Labels for GPU Fluoro Prerequisite Beijing
	5350519-3	1	Labels for GPU Fluoro Prerequisite Hino
3	5344368-1EN	1	GPU Fluoro Prerequisite Installation Manual

Table 1-2 GPU Package for NIO16 Z820, GEHW (5340983-3)

MARK	NUMBER	QTY	DESCRIPTION/NAME
1	5330953-8	1	Nvidia FX4800C PCI-E Graphics Card
2	46-302200P7	1	SERIAL NO MODEL NO DESCRIPTION and MANUFACTURED DATE 2.25 X 1.40 PLATE
3	5344368-1EN	1	GPU Fluoro Prerequisite Installation Manual

Table 1-3 GPU Package, WSO (5340983-2)

MARK	NUMBER	QTY	DESCRIPTION/NAME
1	5767682	1	Label for Option on OC Collector
2	5344368-1EN	1	GPU Fluoro Prerequisite Installation Manual
3	8770000-126	1	NVIDIA Quadro M5000 Graphic

Table 1-4 GPU Package for NIO16 Z840 (5767192)

Chapter 2

Installation Procedure

Section 1.0 Overview

This procedure describes the GPU Fluoro Prerequisite Installation. This hardware works as a prerequisite with the following options.

- Enhanced Recon Option
- Smartview Fluoro Option
- MAR Option (only for Optima CT580, Discovery CT590 and Discovery RT)

Section 2.0 Procedure

2.1 Power-Off (Shutdown)

- 1.) Select one of the following methods to Power OFF the Operator Console if the Power is ON.
 - a.) If Applications are up, click on the [Shut Down] button and select [Shutdown].
 - b.) If Applications are down, open a Unix Shell from pop-up menu. Enter (type) the following command, at the indicated prompts.

```
ctuser@hostname: su -  
Password: #bigguy  
root@hostname: halt
```
- 2.) Power OFF the console at the front panel switch when 'System Halted' message is displayed.

2.2 GPU Card Installation

2.2.1 GPU Card Installation for TIO Console

Follow ESD Management and Device Handling procedure.

- 1.) Remove the left side cover of TIO Console.
- 2.) Open the XW8600 side access panel from left side access.

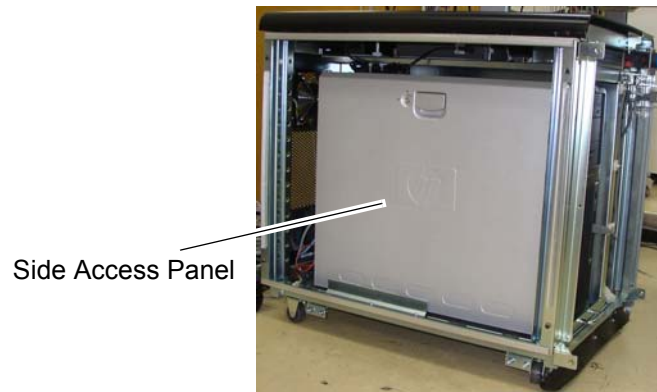


Figure 2-1 Side Cover

- 3.) Disconnect the cables from video card (2) and SCSI card (1). Mark one of the video cable for re-connection (left or right).
- 4.) Remove PCI card support as follows:
 - a.) Press the top and bottom sides of the card support to unhook.
 - b.) Rotate the card support, and remove it from the chassis.



PCI Card Support

Figure 2-2 PCI Card Support Removal

- 5.) Open PCI card retention clamp as follows:
 - a.) Press levers of the retention clamp to unhook.
 - b.) Rotate the retention clamp, and open it.



Figure 2-3 PCI Card Retention Clamp

- 6.) Remove the Video card as follows:
 - a.) Push up the card slot release lever to release the card, and carefully pull the video card out of the slot.

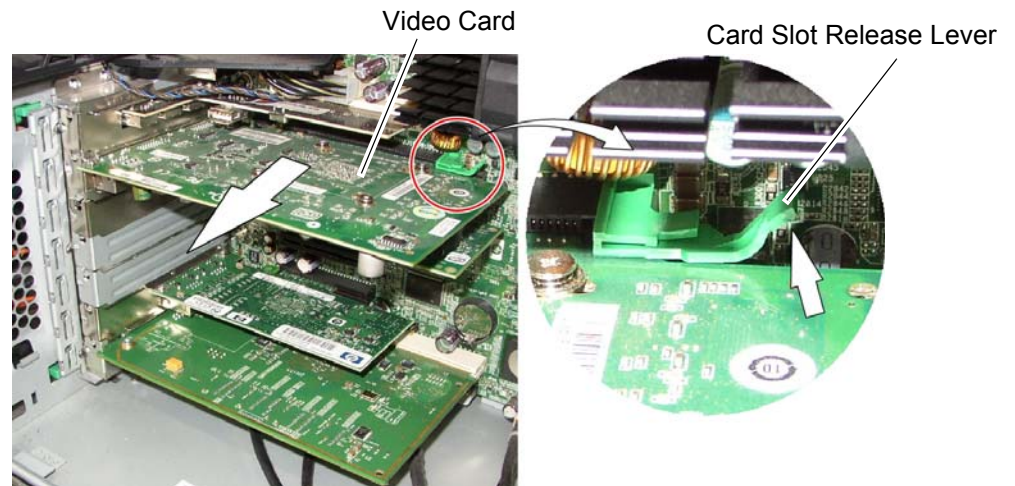


Figure 2-4 Video Card Removal

- 7.) Carefully pull the SCSI card out of the slot.



Figure 2-5 SCSI Card Removal

- 8.) Remove two PCI slot covers.

PCI Slot Covers

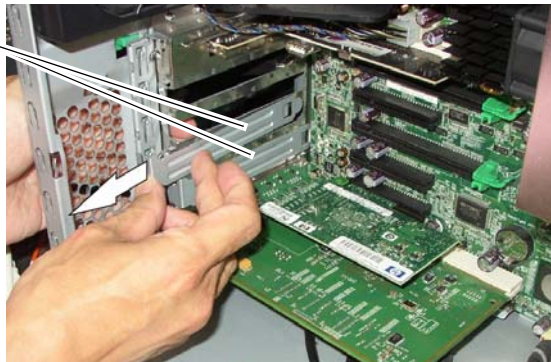


Figure 2-6 PCI Slot Covers

- 9.) Install the FX4800 Graphic Card to the slot #4 as follows:
 - a.) Align the FX4800 card keyway with the slot key, and firmly seat the FX4800 card in the slot #4.
 - b.) Connect the local power cable to the FX4800 card.

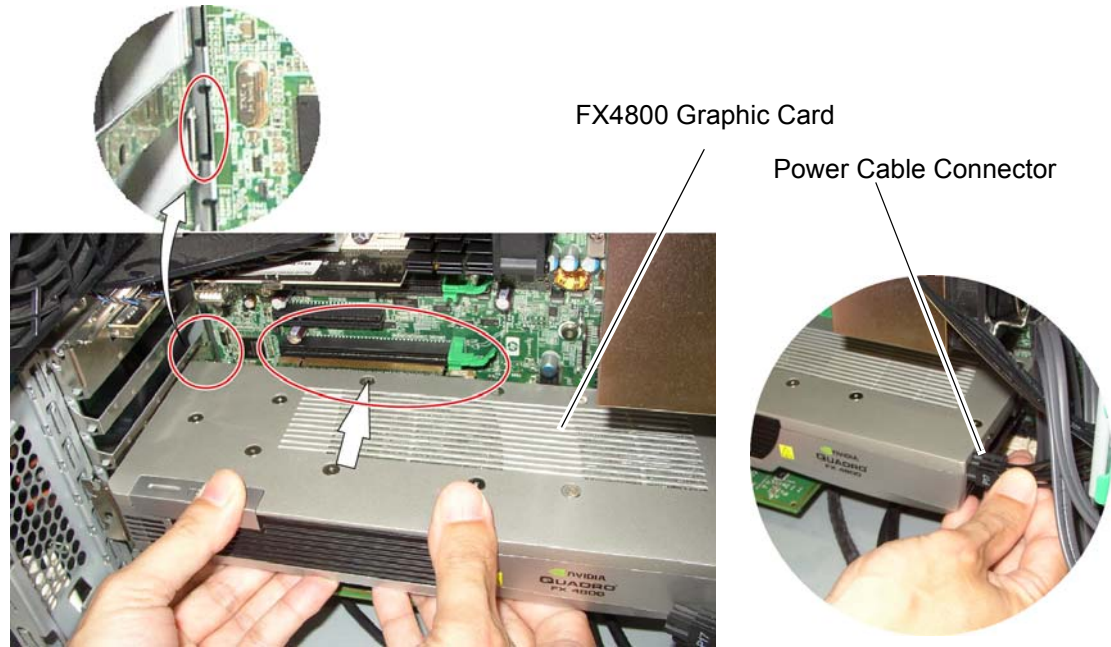


Figure 2-7 FX4800 Installation

- 10.) Re-install the SCSI card and video card in place.
- 11.) Close the PCI card retention clamp by rotating the clamp and pressing the two green clamp levers from the back panel of the chassis.

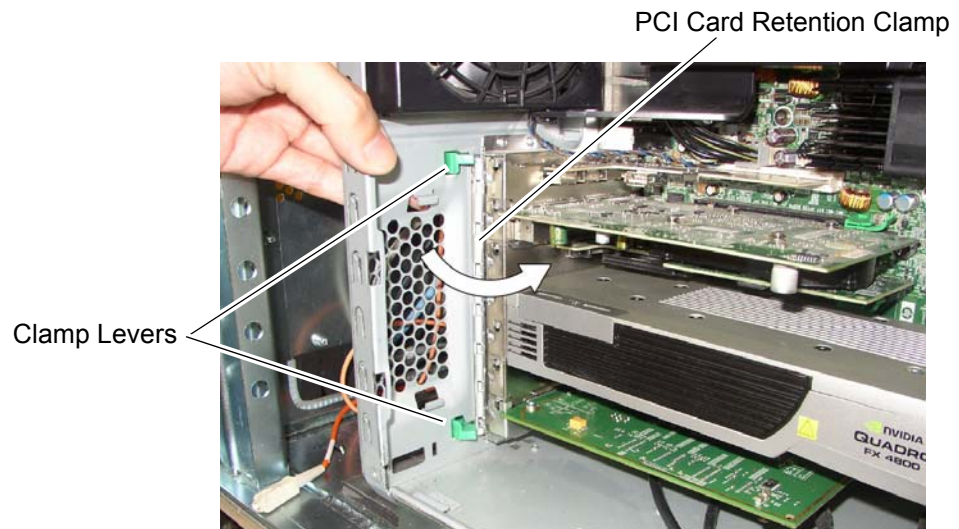


Figure 2-8 PCI Card Retention Clamp

Note: If the PCI card retention clamp levers do not close, make sure that all cards are properly seated, then try again.

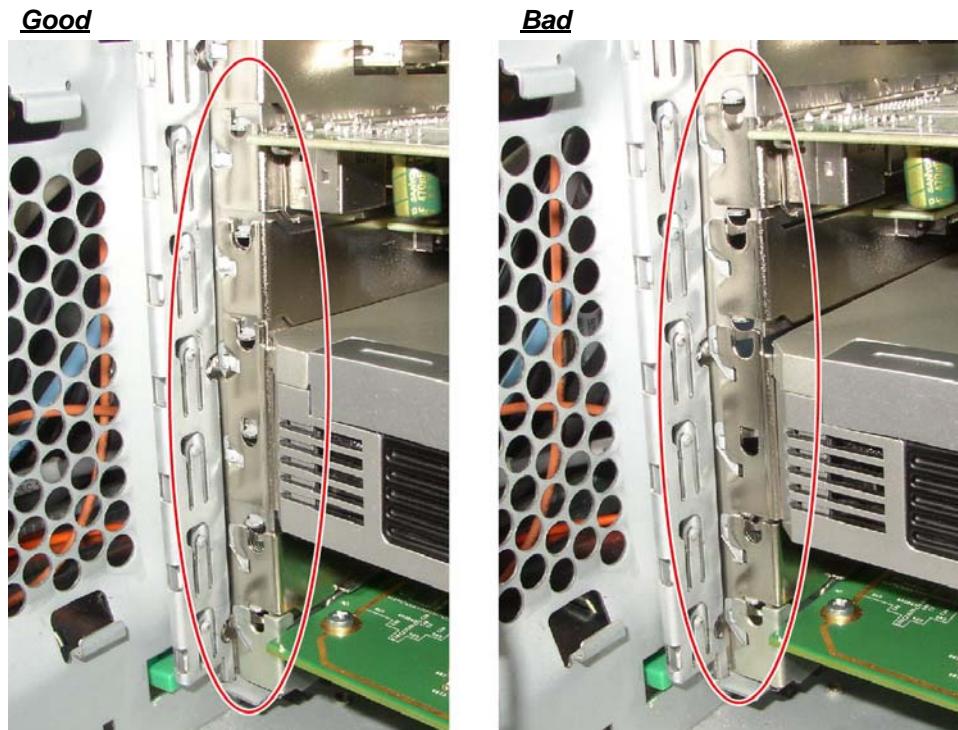


Figure 2-9 PCI Card Slot

12.) Install the PCI card support as follows:

- a.) Attach the hooks of the PCI card support to the chassis.
- b.) Rotate the PCI card support until the support arm supports the card.
- c.) Rotate the PCI card support more, until it latches.

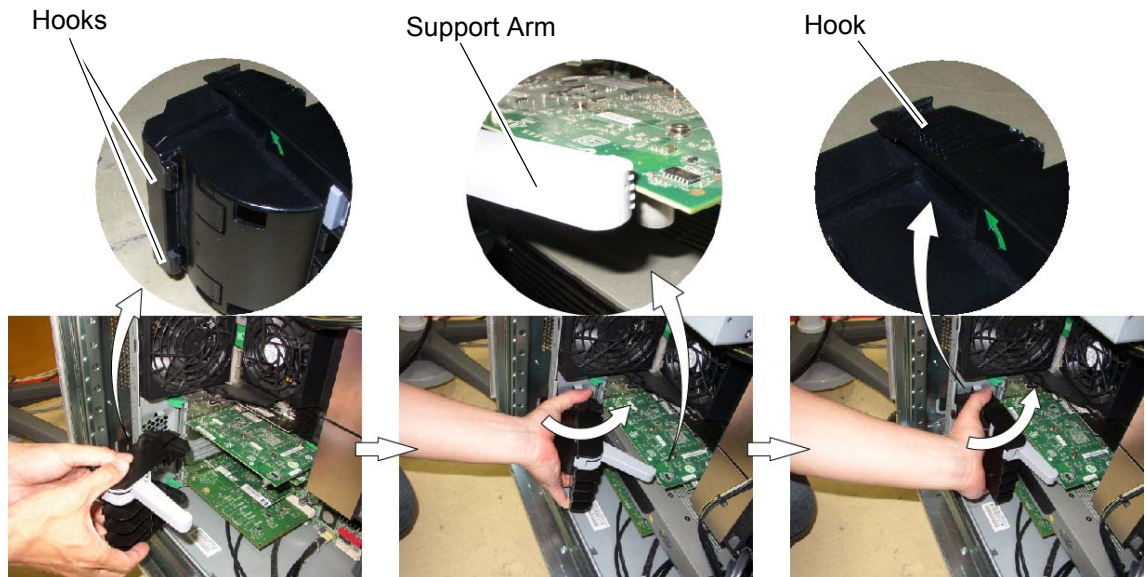


Figure 2-10 PCI Card Support Installation

- 13.) Connect the cables to video card (2) and SCSI card (1).
- 14.) Close the XW8600 left side access panel.
- 15.) Install the left side cover of TIO Console.

2.2.2 GPU Card Installation for NIO16 Console with Z800 Host Computer

Follow ESD Management and Device Handling procedure.



Figure 2-11 Side Cover

- 1.) Remove the console left side cover by unscrewing its four screws.
 - a.) Remove the side access panel by unscrewing its three screws shown as [Figure 2-12](#).



Figure 2-12 Side Access Panel

- b.) Pull out the latch to release the left side cover shown as [Figure 2-13](#) .



Figure 2-13 Left Side Cover

- 2.) Remove the Airflow Guide and Expansion Card Support shown as below.:

- a.) Pull the two handle of right sides shown as [Figure 2-14](#).

Airflow Guide



Expansion Card Support



Figure 2-14 Remove the Protect Covers

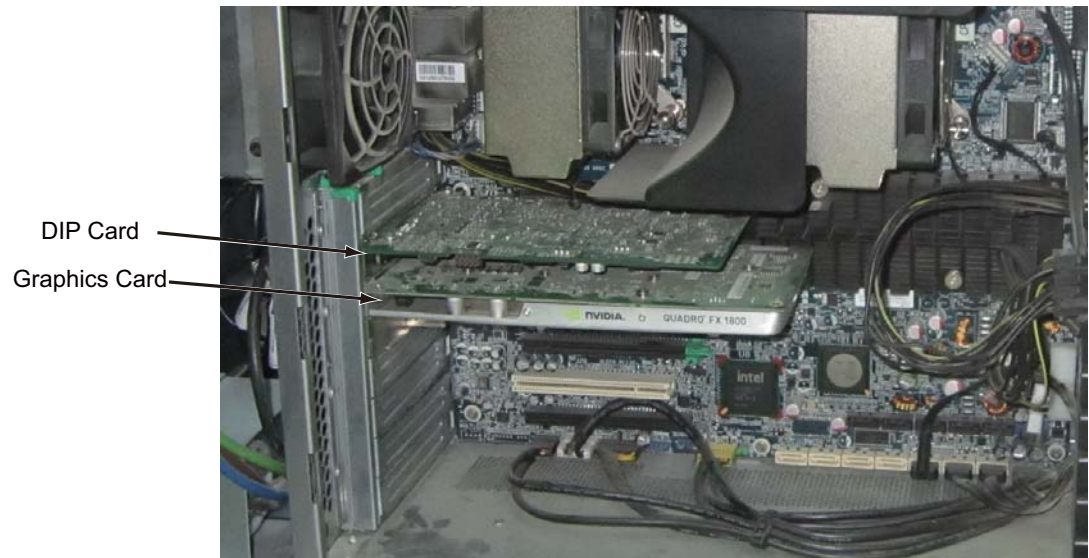


Figure 2-15 DIP Card and Graphics Card

- 3.) Open PCI card retention clamp as follows:
 - a.) Press lever of the retention clamp to unhook.
 - b.) Rotate the retention clamp, and open it shown as [Figure 2-16](#).

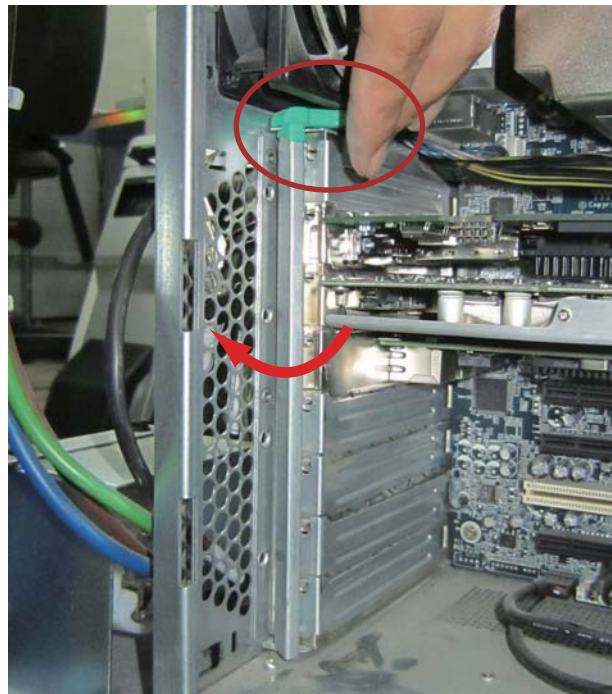


Figure 2-16 Open PCI Card Retention clamp.

c.) Open the back side cover by unscrewing its two screws.



Figure 2-17 Open Back Side Cover

d.) Remove two PCI slot covers from back side shown as [Figure 2-18](#).



PCI slot cover

Remove Two PCI Slot Cover



Figure 2-18 PCI Slot Covers Removal

4.) Install the FX4800 GPU Card to the slot #5 as follows:

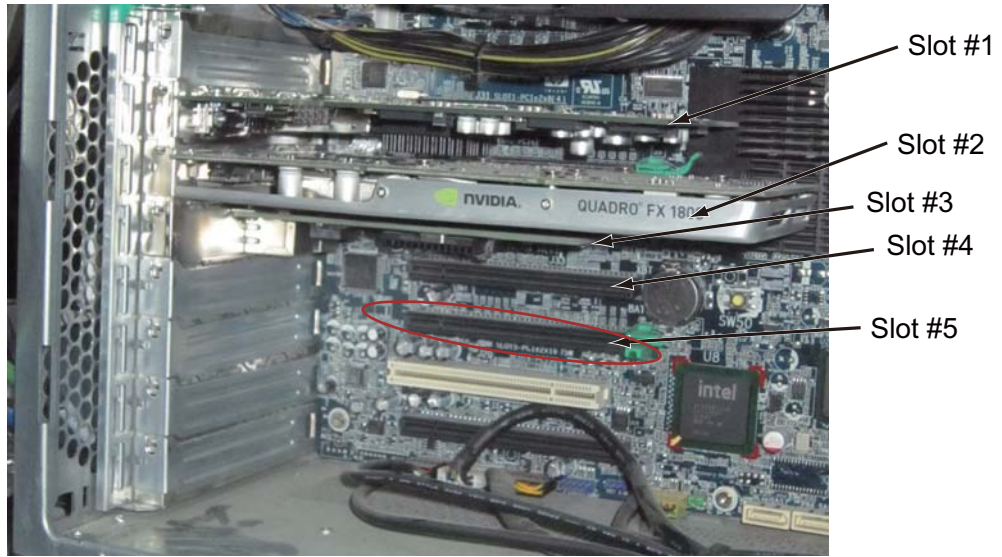


Figure 2-19 Slot

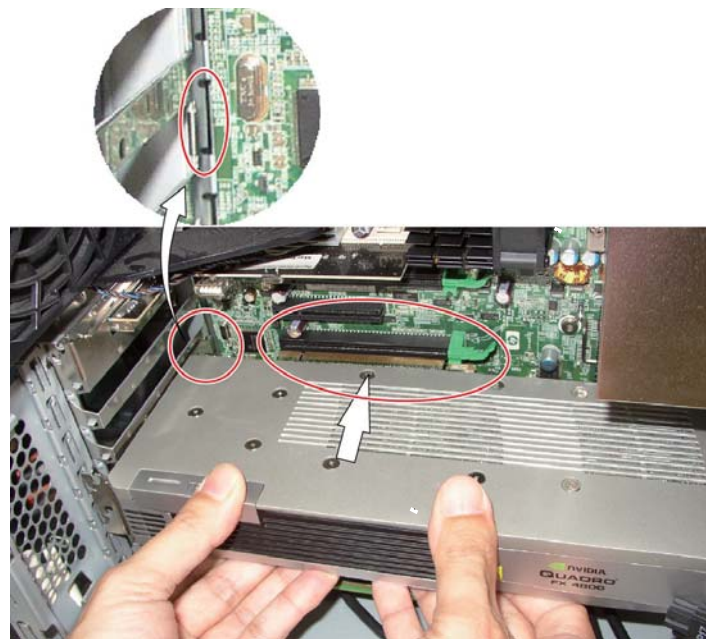
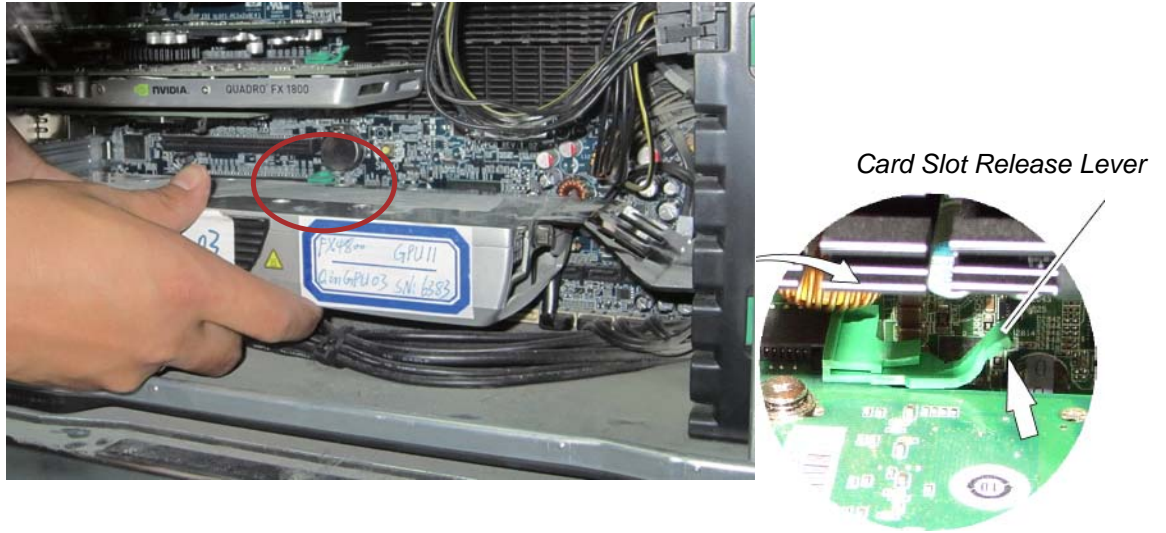


Figure 2-20 Push GPU in the Slot

a.) Carefully push the GPU card in the slot.



b.) Disconnect the power cable, then connect it to the FX4800 GPU Card shown as [Figure 2-21](#) and [Figure 2-22](#).

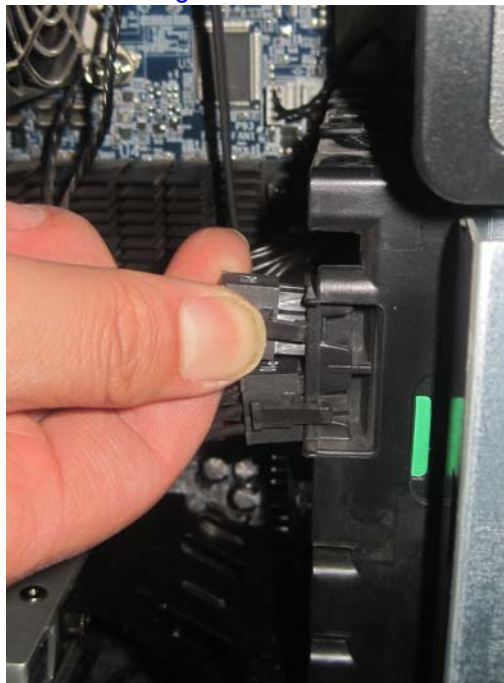


Figure 2-21 Disconnect Power Cable



Figure 2-22 Connect Local Power

- 5.) Close the PCI card retention clamp.

Note: If the PCI card retention clamp levers do not close, make sure that all cards are properly seated, and then try again.

- 6.) Reinstall the Airflow Guide and Expansion Card Support shown as [Figure 2-14](#).
- 7.) Reinstall the computer left side cover and the side access panel. Reinstall the console left side cover by screwing its four screws.
- 8.) Close the console back side cover.

2.2.3 GPU Card Installation for NIO16 Console with Z820 Host Computer

Follow ESD Management and Device Handling procedure.



Figure 2-23 Side Cover

- 1.) Remove the console left side cover by unscrewing its four screws.
 - a.) Remove the side access panel by unscrewing its three screws shown as [Figure 2-24](#).

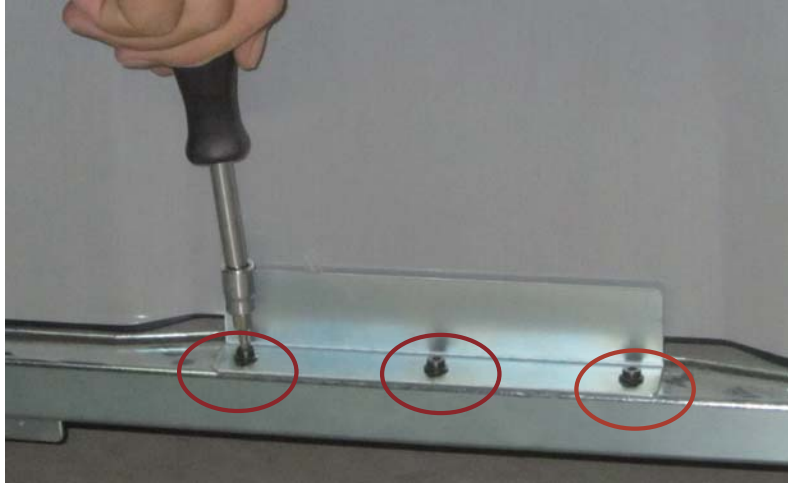


Figure 2-24 Side Access Panel

- b.) Pull out the latch to release the left side cover shown as [Figure 2-25](#).



Figure 2-25 Left Side Cover

- 2.) Remove the Expansion Card Support and Airflow Guide as shown below:
 - i.) Pull the handle of right side of the Expansion Card Support.
 - ii.) Hold two handles of Airflow Guide, pull out vertically.

Expansion Card Support



Airflow Guide



Figure 2-26 Remove the Protect Covers



Figure 2-27 Z820 Host Computer

- 3.) Open PCI card retention clamp as follows:
 - a.) Press lever of the retention clamp to unhook.
 - b.) Rotate the retention clamp, and open it shown as [Figure 2-28](#).

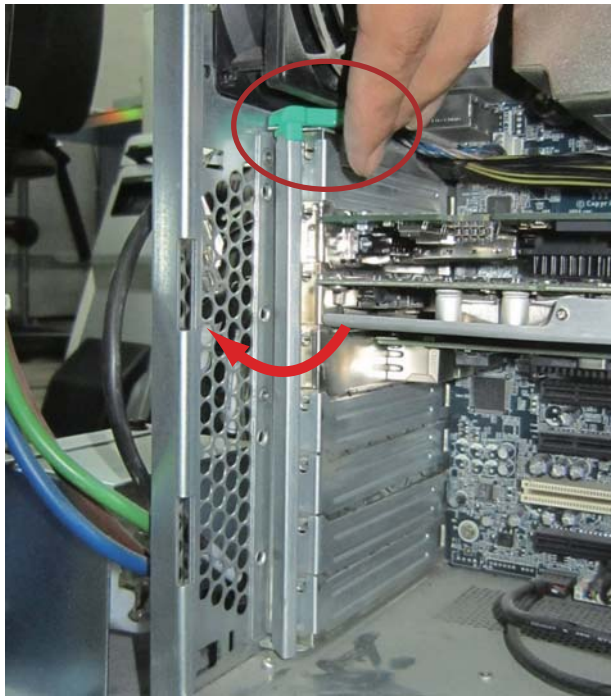


Figure 2-28 Open PCI Card Retention clamp.

- c.) Open the back side cover by unscrewing its two screws.



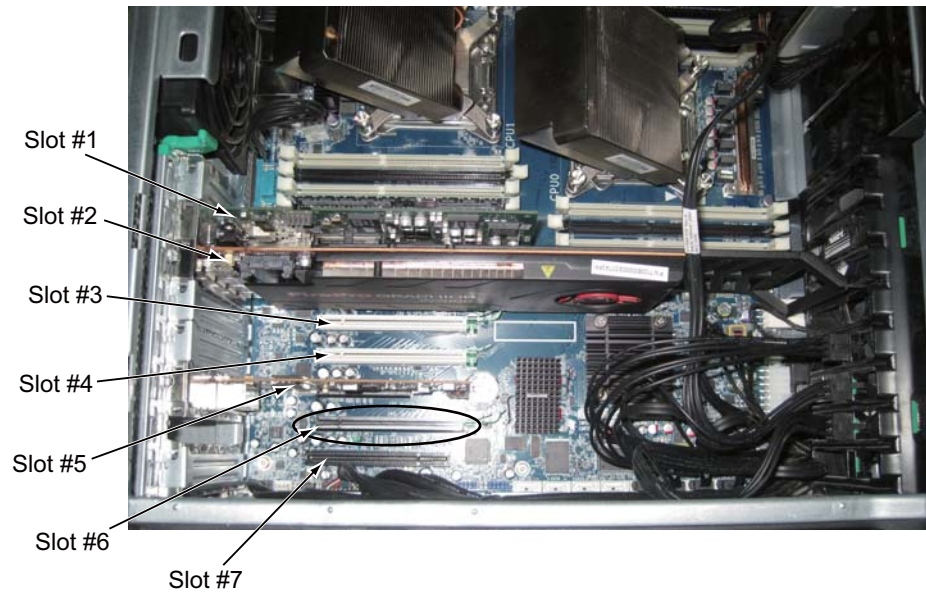
Figure 2-29 Open Back Side Cover

d.) Remove PCI slot cover from back side shown as [Figure 2-30](#).

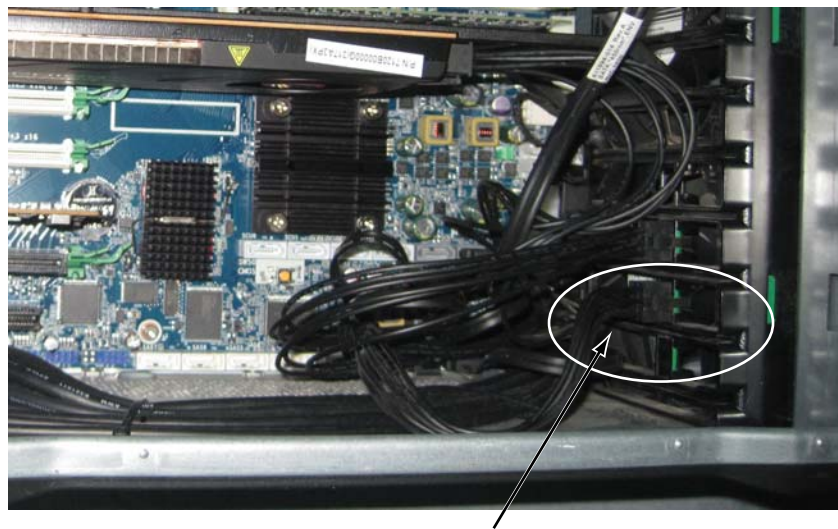


Figure 2-30 PCI Slot Cover Removal

4.) Install the FirePro W7000 GPU Card to the slot #6 as follows:



a.) Remove the power cable connector indicated in [Figure 2-31](#) from the bracket to free the second slot.



Remove Power Connector

Figure 2-31 Remove Power Connector

b.) Carefully push the GPU card in the slot and avoid cables interference.

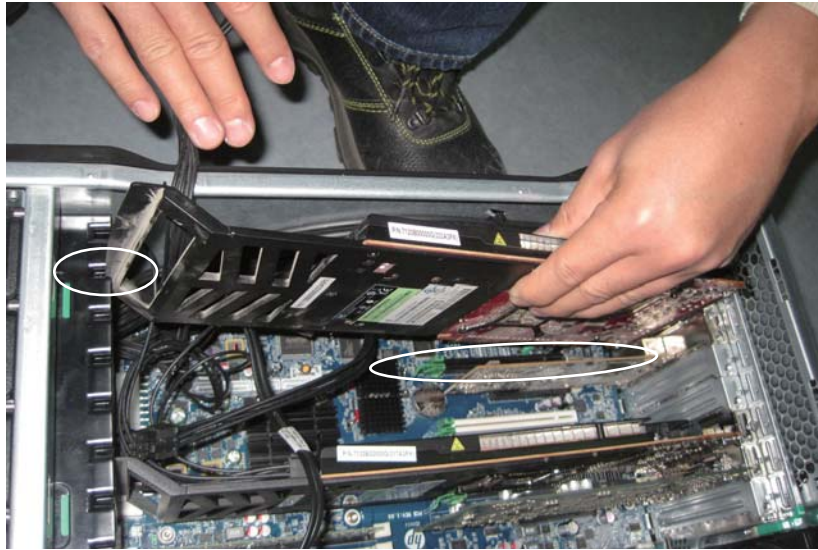


Figure 2-32 Insert GPU Card in the Slot

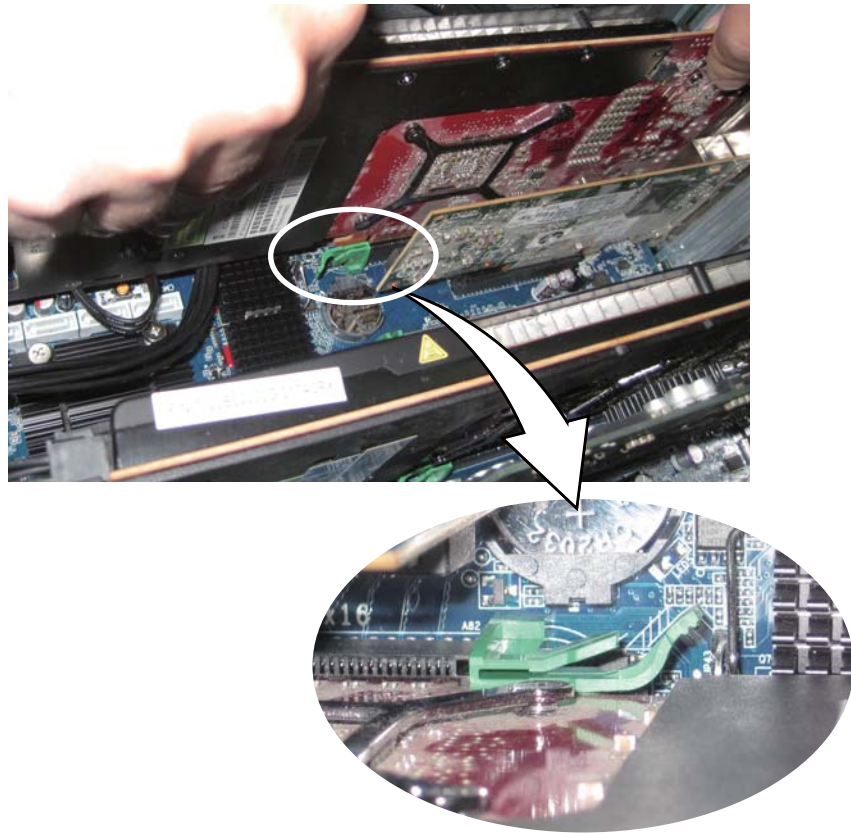


Figure 2-33 Slot Release Level

c.) Connect the power cable disconnected in Step a.) to the GPU card.

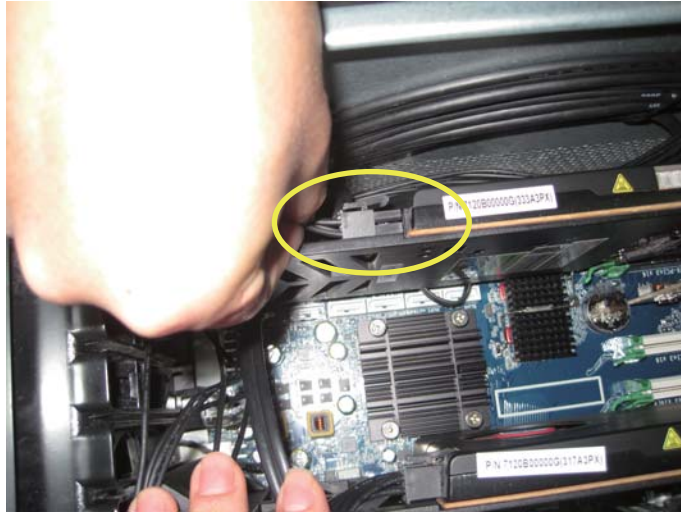


Figure 2-34 Connect Power Cable

5.) Close the PCI card retention clamp.

Note: If the PCI card retention clamp levers do not close, make sure that all cards are properly seated, and then try again.

6.) Reinstall the Expansion Card Support and Airflow Guide shown as [Figure 2-26](#).

7.) Reinstall the computer left side cover and the side access panel. Reinstall the console left side cover by screwing its four screws.

8.) Close the console back side cover.

2.2.4 GPU Card Installation for NIO16 Console with Z840 Host Computer

Follow ESD Management and Device Handling procedure.



Figure 2-35 Side Cover

- 1.) Remove the console left side cover by unscrewing its four screws.
 - a.) Remove the side access panel by unscrewing its three screws shown as [Figure 2-36](#).



Figure 2-36 Side Access Panel

- b.) Pull out the latch to release the left side cover shown as [Figure 2-37](#).



Figure 2-37 Left Side Cover

- 2.) Remove the Expansion Card Support and Airflow Guide as shown below:
 - i.) Pull the handle of right side of the Expansion Card Support.
 - ii.) Hold two handles of Airflow Guide, pull out vertically.

Expansion Card Support



Airflow Guide



Figure 2-38 Remove the Protect Covers



Figure 2-39 Z840 Host Computer

- 3.) Open PCI card retention clamp as follows:
 - a.) Press lever of the retention clamp to unhook.
 - b.) Rotate the retention clamp, and open it shown as [Figure 2-40](#).

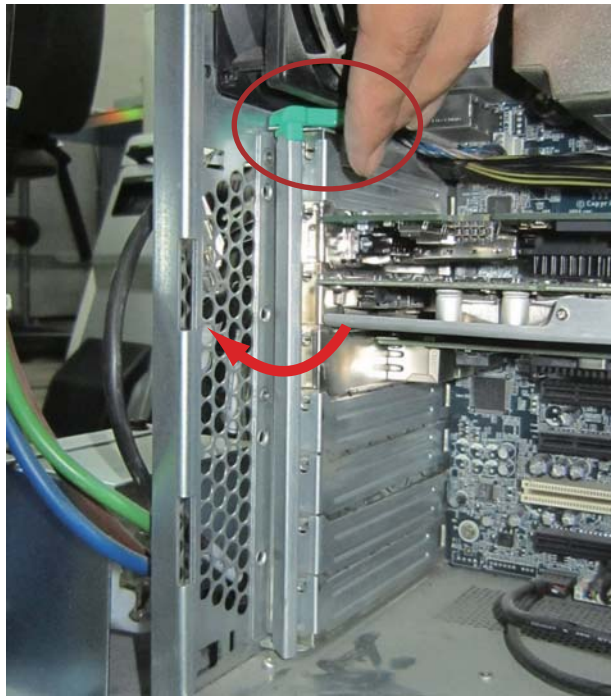


Figure 2-40 Open PCI Card Retention Clamp.

- c.) Open the back side cover by unscrewing its two screws.



Figure 2-41 Open Back Side Cover

d.) Remove two PCI slot covers from back side shown as [Figure 2-42](#).

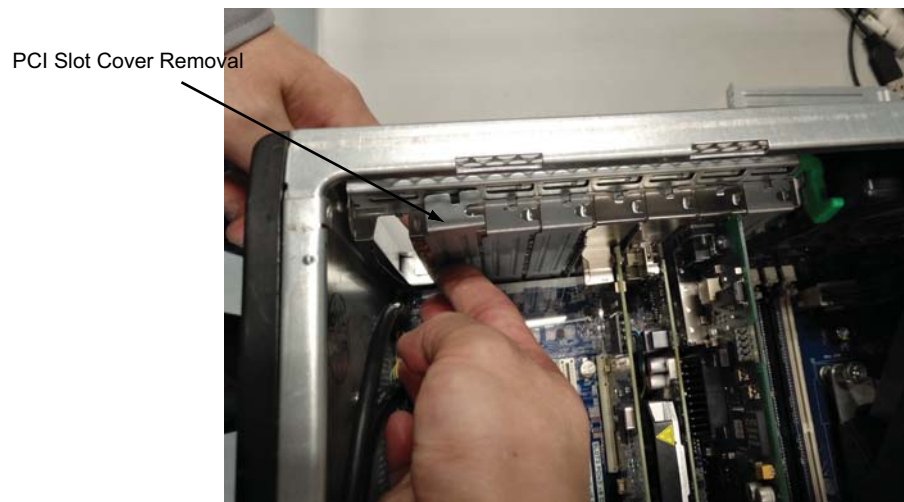
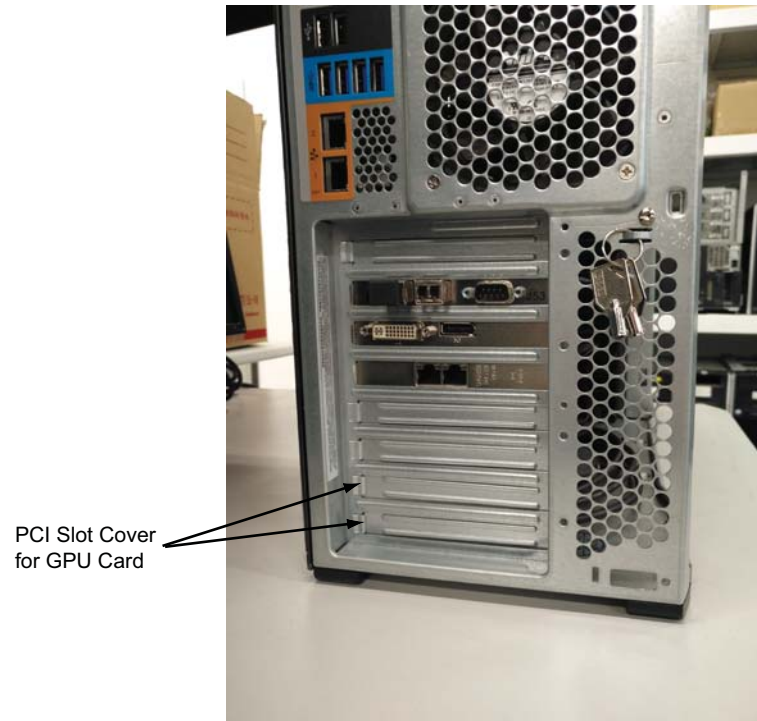
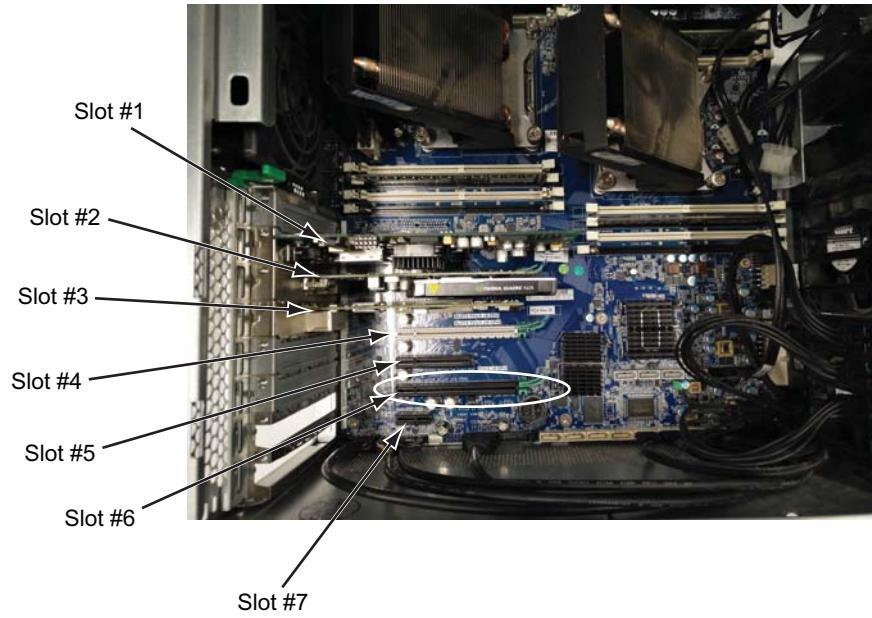


Figure 2-42 PCI Slot Covers Removal

4.) Install the NVIDIA Quadro M5000 GPU Card to the slot #6 as follows:



a.) Remove the power cable connector indicated in [Figure 2-43](#) from the bracket to free the second slot.

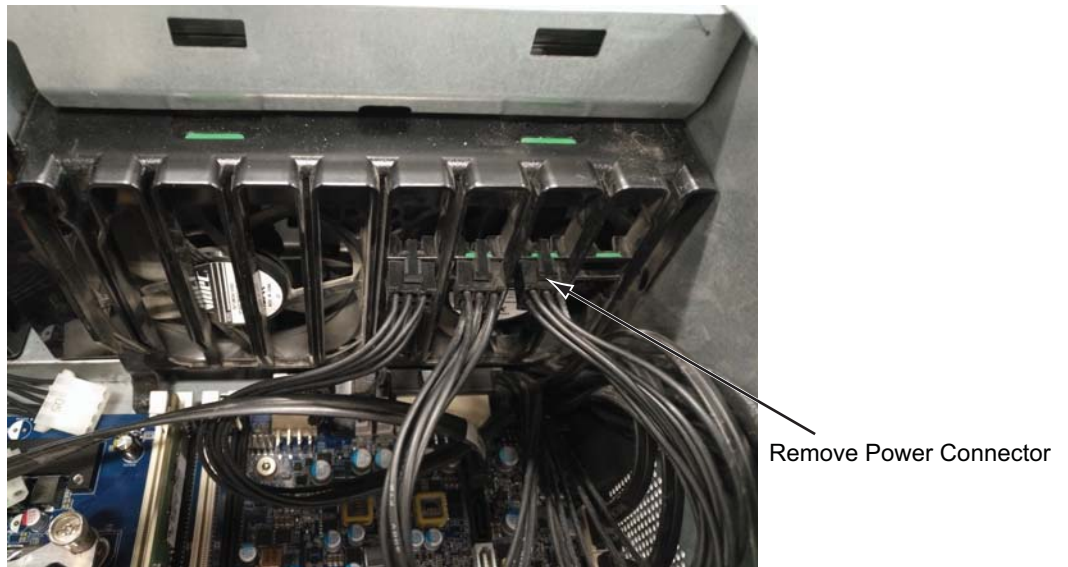


Figure 2-43 Remove Power Connector

b.) Carefully push the GPU card in the slot #6 and avoid cables interference.

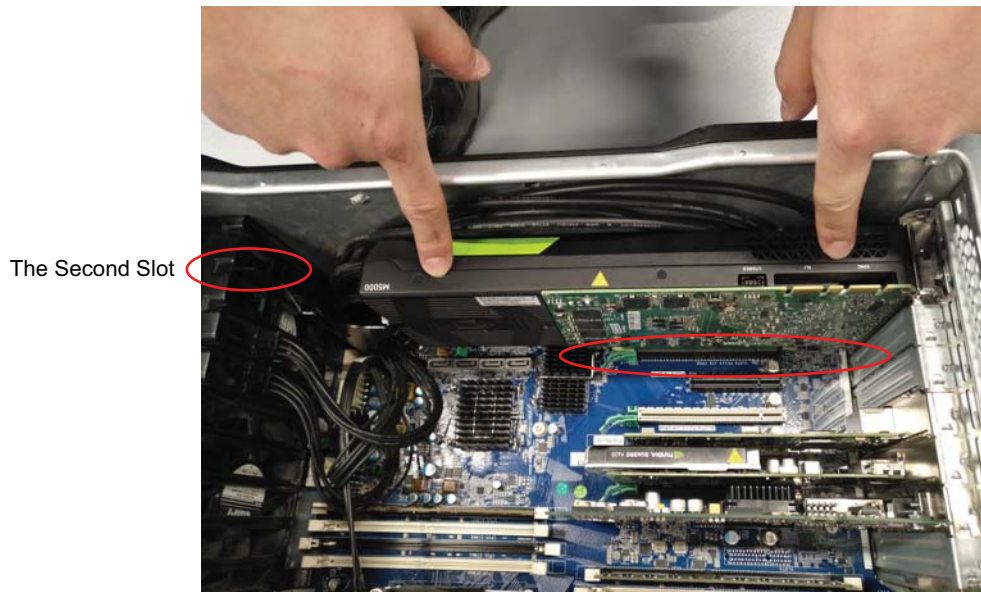
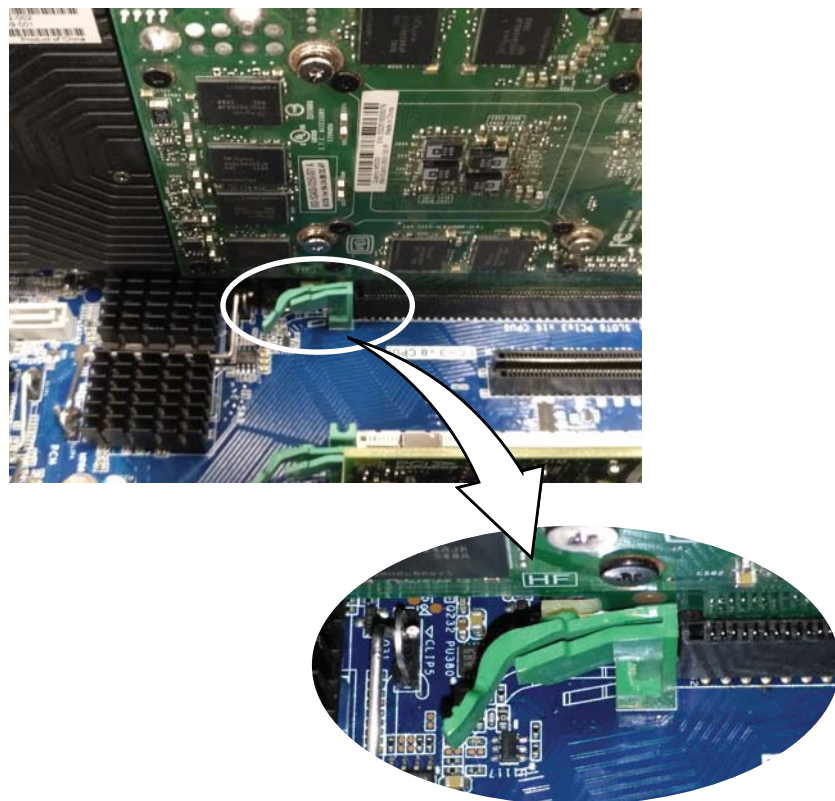


Figure 2-44 Insert GPU Card in the Slot



c.) Connect the power cable disconnected in Step a.) to the GPU card.



Power Cable Connector

Figure 2-46 Connect Power Cable to GPU Card

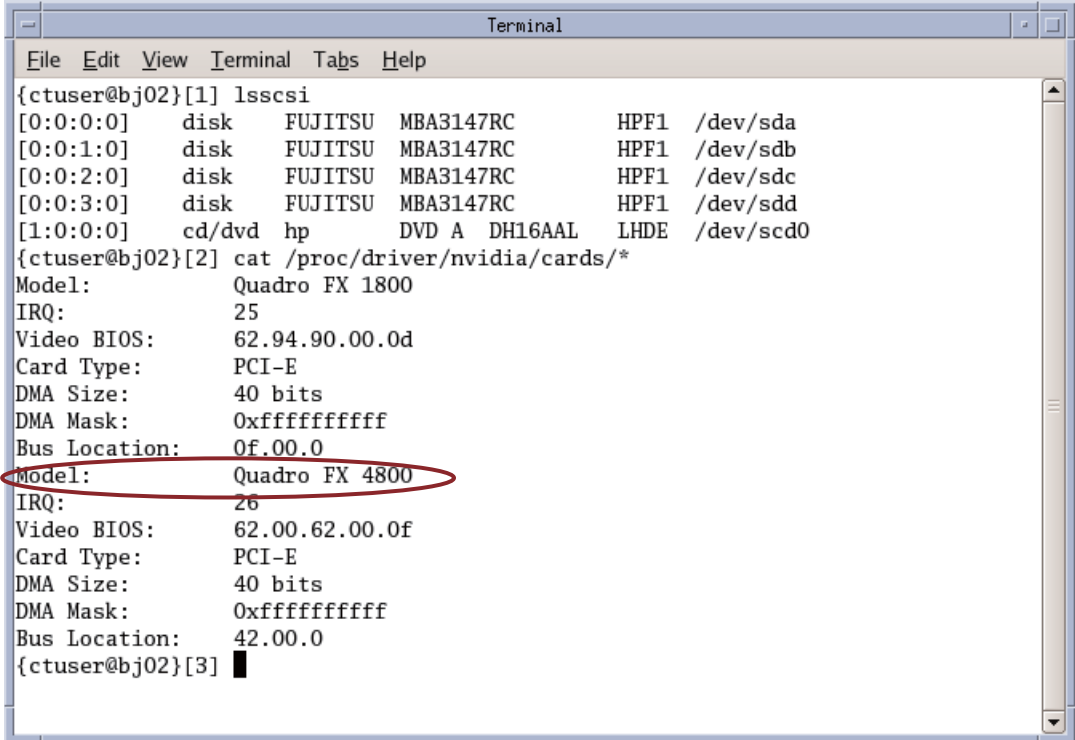
5.) Close the PCI card retention clamp.

- Note: If the PCI card retention clamp levers do not close, make sure that all cards are properly seated, and then try again.
- 6.) Reinstall the Expansion Card Support and Airflow Guide shown as [Figure 2-38](#).
 - 7.) Reinstall the computer left side cover and the side access panel. Reinstall the console left side cover by screwing its four screws.
 - 8.) Close the console back side cover.

2.3 Check GPU Card

2.3.1 GPU Card Inspection - Quadro FX4800

- Power on console and Open a shell, then type: `cat /proc/driver/nvidia/cards/*`
- Check the result as below [Figure 2-47](#): model: Quadro FX 4800

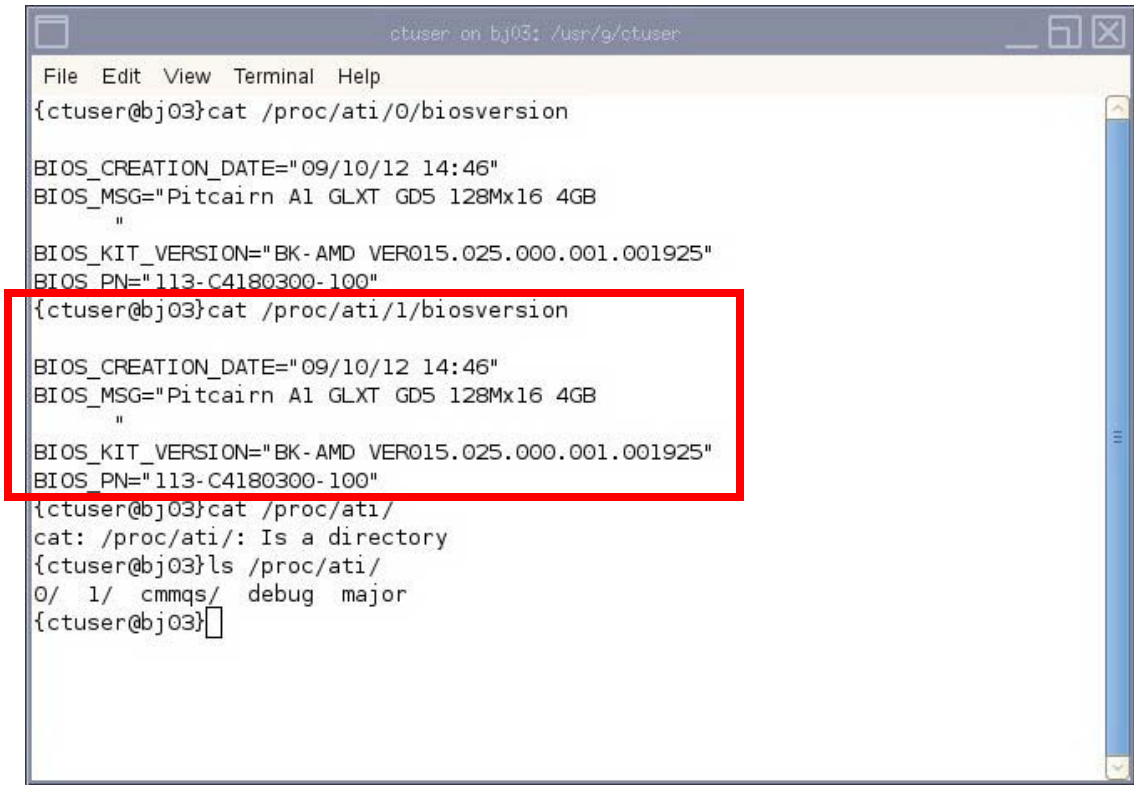


```
{ctuser@bj02}[1] lsscsi
[0:0:0:0]   disk    FUJITSU  MBA3147RC      HPF1  /dev/sda
[0:0:1:0]   disk    FUJITSU  MBA3147RC      HPF1  /dev/sdb
[0:0:2:0]   disk    FUJITSU  MBA3147RC      HPF1  /dev/sdc
[0:0:3:0]   disk    FUJITSU  MBA3147RC      HPF1  /dev/sdd
[1:0:0:0]   cd/dvd  hp       DVD A  DH16AAL    LHDE  /dev/scd0
{ctuser@bj02}[2] cat /proc/driver/nvidia/cards/*
Model:      Quadro FX 1800
IRQ:        25
Video BIOS: 62.94.90.00.0d
Card Type:  PCI-E
DMA Size:   40 bits
DMA Mask:   0xffffffff
Bus Location: 0f.00.0
Model:      Quadro FX 4800
IRQ:        26
Video BIOS: 62.00.62.00.0f
Card Type:  PCI-E
DMA Size:   40 bits
DMA Mask:   0xffffffff
Bus Location: 42.00.0
{ctuser@bj02}[3] █
```

Figure 2-47 Check result

2.3.2 GPU Card Inspection - FirePro W7000

Power on console and Open a shell, then type: *cat /proc/ati/1/biosversion*.



The image shows a terminal window titled "ctuser on bj03: /usr/g/ctuser". The terminal output is as follows:

```
File Edit View Terminal Help
{ctuser@bj03}cat /proc/ati/0/biosversion

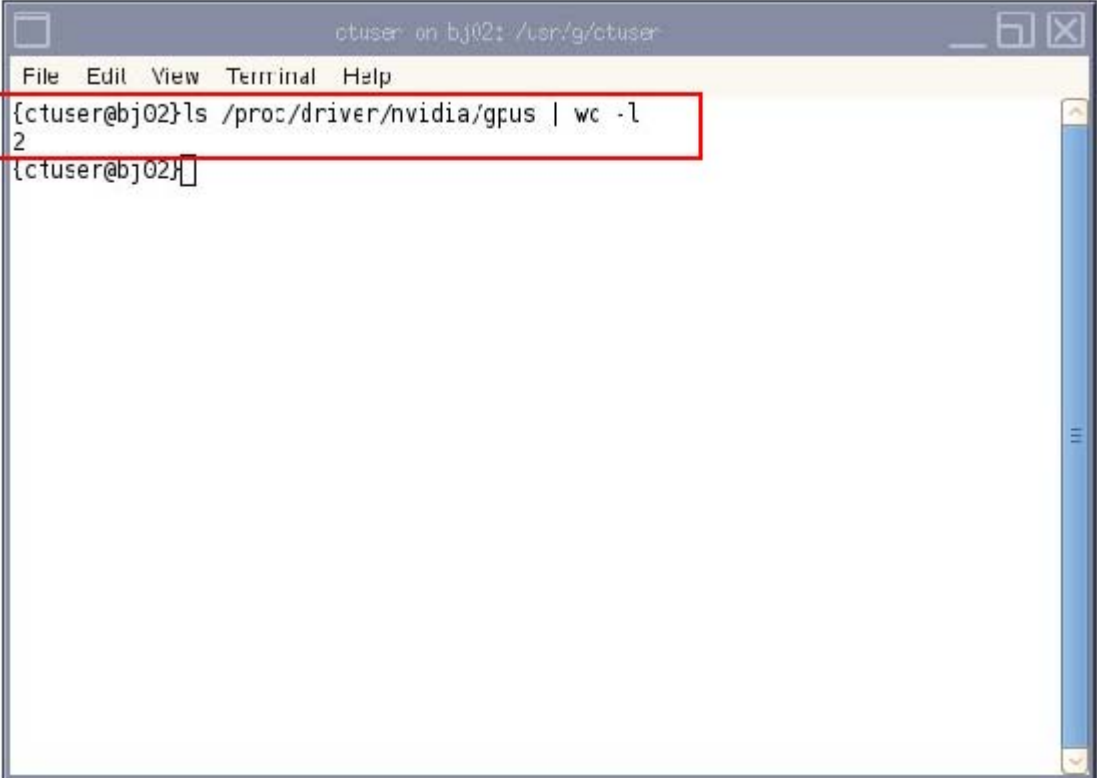
BIOS_CREATION_DATE="09/10/12 14:46"
BIOS_MSG="Pitcairn A1 GLXT GD5 128Mx16 4GB
"
BIOS_KIT_VERSION="BK-AMD VER015.025.000.001.001925"
BIOS_PN="113-C4180300-100"
{ctuser@bj03}cat /proc/ati/1/biosversion

BIOS_CREATION_DATE="09/10/12 14:46"
BIOS_MSG="Pitcairn A1 GLXT GD5 128Mx16 4GB
"
BIOS_KIT_VERSION="BK-AMD VER015.025.000.001.001925"
BIOS_PN="113-C4180300-100"
{ctuser@bj03}cat /proc/ati/
cat: /proc/ati/: Is a directory
{ctuser@bj03}ls /proc/ati/
0/ 1/ cmmqs/ debug major
{ctuser@bj03}
```

The output for `cat /proc/ati/1/biosversion` is highlighted with a red box.

2.3.3 GPU Card Inspection - NVIDIA Quadro M5000

Power on console and Open a shell, then type: `ls /proc/driver/nvidia/gpus | wc -l`



The screenshot shows a terminal window titled 'ctuser on bj02: /usr/g/ctuser'. The terminal has a menu bar with 'File Edit View Terminal Help'. The command `ls /proc/driver/nvidia/gpus | wc -l` is entered and highlighted with a red box. The output of the command is '2', indicating that the Recon GPU card is installed. The prompt `{ctuser@bj02}` is visible at the end of the line.

- If “2” displays, the Recon GPU card is installed.
- If “1” displays, the Recon GPU card is un-installed.

2.4 Power On

Power On the system and confirm both of LCD display shows normal screen, and start up without error.

2.5 Install option (if required)

Install the option which requires GPU Fluoro Option.

Section 3.0 Finalization

- 1.) Execute sanity scan and confirm the scan completed and image is generated without error.
- 2.) Execute GPU Diagnostics in Console Diag, and confirm it's completed successfully.
- 3.) Attach the name plate near the rating plates on the rear cover of console.

www.gehealthcare.com

