

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT6541910

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
TAICHI IGARASHI	11/02/2020
TADAOMI DAIBOU	11/02/2020
JUNICHI ITO	11/06/2020
TADASHI KAI	03/20/2020
SHOGO ITAI	11/04/2020
TOSHIYUKI ENDA	11/09/2020
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	KIOXIA CORPORATION
<b>Street Address:</b>	1-21, SHIBAURA 3-CHOME, MINATO-KU
<b>City:</b>	TOKYO
<b>State/Country:</b>	JAPAN
<b>Postal Code:</b>	108-0023
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	17003846
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(469)533-6480
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	408-899-6442
<b>Email:</b>	docketing@kimandstewart.com, mguajardo@kimandstewart.com
<b>Correspondent Name:</b>	KIM & STEWART LLP
<b>Address Line 1:</b>	111 N. MARKET ST. SUITE 414
<b>Address Line 4:</b>	SAN JOSE, CALIFORNIA 95113
<b>ATTORNEY DOCKET NUMBER:</b>	TAI/3066US
<b>NAME OF SUBMITTER:</b>	MICHAEL D. STEWART
<b>SIGNATURE:</b>	/Michael D. Stewart/
<b>DATE SIGNED:</b>	02/09/2021
<b>Total Attachments: 13</b>	

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MJG022127USAA2 (TAI/3066US)

**ASSIGNMENT FOR APPLICATION FOR PATENT  
WITH DECLARATION STATEMENT**

WHEREAS:

Names of Inventors:

1)	Taichi IGARASHI	2)	Tadaomi DAIBOU
3)	Junichi ITO	4)	Tadashi KAI
5)	Shogo ITAI	6)	Toshiyuki ENDA

(hereinafter referred to as Assignors), have invented a certain invention entitled:

**MEMORY DEVICE**

enclosed herewith or for which application for Letters Patent in the United States was filed on August 26, 2020 under Serial No. 17/003,846; and

WHEREAS, Kioxia Corporation, a Japanese corporation, having a business address at 1-21, Shibaura 3-chome, Minato-ku, Tokyo, Japan, (hereinafter referred to as Assignee), is desirous of acquiring the entire right, title and interest in and to said application (hereinafter referred to as Application), and the invention disclosed therein (hereinafter referred to as Invention), and in and to all embodiments of the Invention, heretofore conceived, made or discovered by said Assignors, and in and to any and all patents, inventor's certificates and other forms of protection (hereinafter referred to as Patents) thereon granted in any and all countries and groups of countries.

NOW, THEREFORE, in consideration of good and valuable consideration acknowledged by said Assignors to have been received in full from said Assignee:

1. Said Assignors hereby sell, assign, transfer and convey to Assignee the full and exclusive right, title and interest (a) in and to said Application and said Invention; (b) in and to all rights to apply for patents on said Invention in any and all countries pursuant to the International Convention for the Protection of Industrial Property or otherwise; (c) in and to any and all Applications filed and any and all Patents granted on said Invention in any and all countries and groups of countries, including each and every Application filed and each and every Patent granted on any application which is a conventional, division, substitution, or continuation of said Application; and (d) in and to each and every reissue or extension of any of said Patents.

2. Said Assignors hereby covenant and agree to cooperate with said Assignee to enable said Assignee to enjoy to the fullest extent the right, title and interest to said Invention herein conveyed in any and all countries and groups of countries. Such cooperation by said Assignors shall include prompt production of pertinent facts and documents, giving testimony, execution of petitions, oaths, specifications, declarations or other papers, and other assistance all to the extent deemed necessary or desirable by said Assignee (a) for perfecting in said Assignee the right, title and interest herein conveyed; (b) for prosecuting any of said applications; (c) for filing and prosecuting substitute, conventional, divisional, continuing or

additional applications covering said Invention; (d) for filing and prosecuting applications for reissuance of any of said Patents; (e) for interference or other priority proceedings involving said Invention; and (f) for legal proceedings involving said Invention and any application therefore and any Patents granted thereon, including without limitation opposition proceedings, cancellation proceedings, priority contests, public use proceedings, infringement actions and court actions; provided, however, that the expense incurred by said Assignors in providing such cooperation shall be paid for by said Assignee.

3. The term and covenants of this agreement shall inure to the benefit of said Assignee, its successors, assigns and other legal representatives, and shall be binding upon said Assignors, their respective heirs, legal representatives and assigns.

4. Said Assignors hereby warrant and represent that they have not entered and will not enter into any assignment, contract, or understanding in conflict herewith.

5. In the event that the filing date and/or Application No. of said Invention are not entered above at the time Assignors execute this document, and if such information is deemed necessary, Assignors hereby authorize and request the attorney/agent(s) of Kim & Stewart LLP, to insert above the filing date and/or Application No. of said application.

6. This declaration is directed to the above-identified application.

As a below named inventor, I hereby declare that:

The above-identified application was made or authorized to be made by me;

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application; and

I acknowledge that any willful false statement made in this declaration is punishable under section 1001 of title 18 by fine or imprisonment of not more than 5 years, or both.

IN WITNESS WHEREOF, the said Assignors have executed and delivered this instrument to said Assignee on the dates indicated below.

1)	<u>2, Nov. 2020</u> (DATE)	<u>Taichi IGARASHI</u> Taichi IGARASHI
2)	_____ (DATE)	_____
3)	_____ (DATE)	_____
4)	_____ (DATE)	_____
5)	_____ (DATE)	_____
6)	_____ (DATE)	_____

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2)	<u>Nov. 2, 2020</u> (DATE)	<u>Tadaomi Daibou</u> Tadaomi DAIBOU
3)	_____ (DATE)	_____ Junichi ITO
4)	_____ (DATE)	_____ Tadashi KAI
5)	_____ (DATE)	_____ Shogo ITAI
6)	_____ (DATE)	_____ Toshiyuki ENDA

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1)	_____ (DATE)	_____
		Taichi IGARASHI
2)	_____ (DATE)	_____
		Tadaomi DAIBOU
3)	<u>Nov. 6, 2020</u> (DATE)	<u>Junichi Ito</u>
		Junichi ITO
4)	_____ (DATE)	_____
		Tadashi KAI
5)	_____ (DATE)	_____
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3)	_____ (DATE)	_____
		Junichi ITO
4)	_____ (DATE)	_____
		Tadashi KAI
5)	<u>Nov. 4, 2020</u> (DATE)	<u>Shogo Itai</u>
		Shogo ITAI
6)	_____ (DATE)	_____
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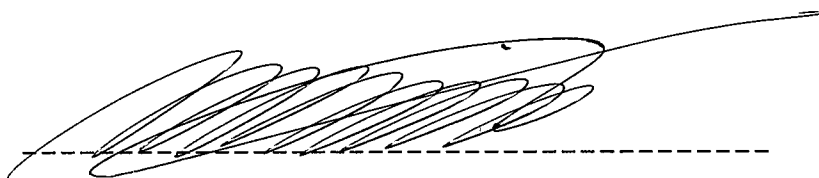
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3)	_____ (DATE)	_____
		Junichi ITO
4)	_____ (DATE)	_____
		Tadashi KAI
5)	_____ (DATE)	_____
		Shogo ITAI
6)	<u>Nov. 9, 2020</u> (DATE)	<u>Toshiyuki Enda</u>
		Toshiyuki ENDA

# **CERTIFICATION**

I, Mitsunobu Sato, Toranomom East Bldg, 7-13, Nishi-Shimbashi 1-chome, Minato-ku, Tokyo, Japan, do hereby certify that I am conversant with the English and Japanese languages and am a competent translator thereof, and I further certify that to the best of my knowledge and belief the attached English translation is a true and correct translation made by me.

Signed on this 18th day of December, 2020

A handwritten signature in dark ink, consisting of several overlapping loops and a long horizontal stroke extending to the right, positioned above a dashed horizontal line.

Mitsunobu Sato

Only for Invention/Device Proposal and within Responsible Department/Section

## Invention/Device Notification

Date of Notification March 20, 2020

Proposal Control Number / Application Control Number G10022127-JP-A

Proposal Reference Number

Responsible Department and Section  
(Device Technology Research & Development Center)  
[Device Technology Development Dept. I]

### Title of the Invention

Memory Device

### Summary of the Invention

In the layered type magnetic memory including a selector and an MTJ (Magnetic Tunnel Junction), heat generation of the selector by applying voltage is liable to cause deterioration in the properties of the elements. For this reason, a heat dissipation layer is added to suppress heat generation when voltage is applied. The current proposal makes it possible to efficiently release heat by using an insulator high in heat conductivity as the heat dissipation layer.

### Internal Inventor(s) (6 inventors)

Employee No.	Name	Company	Office	Dept./Sect.	Inventor's Contribution Rate
16003010	Taichi IGARASHI	KIC	(RDC)	(Device Technology Research & Development Center)[FM Technology Development]	30.0%
06315510	Tadaomi DAIBOU	KIC	(Yokkaichi)	(Device Technology Research & Development Center) [Device Technology Development Dept. I] (DG III)	20.0%
16610586	Junichi ITO	KIC	(MC)	(M Technology Research) [Technology Planning] (Technology Planning II)	20.0%
00252210	Tadashi KAI	KIC	(RDC)	(Device Technology Research & Development Center) [FM Technology Development] (FM I)	15.0%
13002510	Shogo ITAI	KIC	(MC)	(Device Technology Research & Development Center) [TC Technology Development] (TC III)	10.0%
92030310	Toshiyuki ENDA	KIC	(MC)	(Device Technology Research & Development Center) [TC Technology Development]	5.0%

### Consent Matters

I (Inventor/Designer) hereby agree as follows:

1. The Invention, etc. falls under an Employee Invention, etc.
2. In countries where the right to file an intellectual property application for an Employee Invention, etc. shall belong to a corresponding Inventor(s), etc. pursuant to applicable domestic laws and regulations, the Company shall succeed the right to file an intellectual property application for the Invention, etc. at the time of completion of the Invention, etc.
3. In countries where the right to file an intellectual property application for an Employee Invention, etc. shall belong to the relevant Inventor(s), etc. pursuant to the applicable domestic laws and regulations, a joint inventor(s) (designer(s)) will transfer his/her share in the right to file an intellectual property application for the Invention, etc. to his/her employer, etc.
4. I will cooperate with the Company in performing the procedures for acquiring a patent, etc. in Japan and foreign countries.
5. The inventor's contribution rate for the Invention, etc. shall be determined as specified above.

Internal Inventor(s)

## 発 明 考 案 届 出 書

届出日 2020/03/20

提案管理番号／出願管理番号

G10022127-JP-A

提案整理番号

所管部課 (D技C) [D一開]

## 発明の名称

記憶装置

## 発明の概要

セレクトラとMTJからなる積層型磁気メモリにおいて、電圧印加によるセレクトラの発熱は素子の特性劣化を引き起こす恐れがある。そこで電圧印加時の発熱を抑えるための放熱層を加える。今回の提案では放熱層として熱伝導度の高い絶縁体を用いることで、効率的に熱を逃がすことができる。

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PATENT

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